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Conolly, J. H., and Rimbach, Richard. Continuous Plating of Fine Steel Wire with Nickel, **84,** 293 (1943)
Cook, E. L., and Hackerman, Norman. Effect of Adsorbed Polar Organic Compounds on Activity of Steel in Acid Solution, **97,** 1 (1950)
Cook, W. G., and Stoltz, G. E. Characteristics of Electric Apparatus Used on Electro-Tinning Lines, **84,** 259 (1943)
Cooper, J. R., and Kenty, Carl. Study of the Effects of Gas Impurities in Fluorescent Lamps, **87,** 397 (1945)
Copeland, L. C., *et al.* Preparation of a Dry Cell Depolarizer by Air Oxidation of Manganous Hydroxide, **92,** 127 (1947)
Copeland, L. C., and Griffith, F. S. Reaction of the Leclanché Dry Cell, **89,** 495 (1946)
Copson, H. R. Distribution of Galvanic Corrosion, **84,** 71 (1943)
Copson, H. R. Review of Corrosion Literature for 1945: Corrosion Testing Methods and Apparatus and Electrochemical Methods in Corrosion, **89,** 64 (1946)
Copson, H. R. (D), **87,** 181 (1945)
Copson, H. R., and Wesley, W. A. Coating Steel with Nickel by Immersion in Nickel Chloride Solutions, **94,** 20 (1948)
Copson, H. R., and Wesley, W. A. Corrosion of Tin-Nickel Alloy Coatings on Steel in Canned Foodstuffs, **84,** 211 (1943)
Copson, H. R., and Wesley, W. A. Effect of Non-Condensable Gases on Corrosion of Nickel in Steam Condensate, **95,** 226 (1949)
Cordiano, J. J. Copper in Powder Metallurgy, **85,** 97 (1944)
Cordiano, J. J. (D), **85,** 152 (1944)
Cotton, W. J. Electrical Activation of Chemical Reactions: Production of Nitric Oxide, **90,** 3 (1946)
Cotton, W. J. Electric Activation of Chemical Reactions: Nitrogen Fixation by a New Type of Electric Discharge, I. Crossed Discharge, **91,** 407 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions: Production of Nitrogen Oxides, II. Critical Reaction Frequencies, **91,** 419 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions: Production of Nitrogen Oxides, III. Critical Electrode Frequencies, **91,** 437 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions: Production of Nitrogen Oxides, IV. Critical Wave Length Tables, **91,** 455 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions, IVa. Critical Frequency Tables, **91,** 463 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions: Production of Nitrogen Oxides, V. Multiple Activation, **91,** 493 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions: Production of Nitrogen Oxides, VI. Periodic Activation and Work Functions of Electrode Materials, **91,** 509 (1947)
Cotton, W. J. Electric Activation of Chemical Reactions, VII. Effect of Some Variables on Electric Discharges through Gases, **91,** 519 (1947)
Cottrell, Samuel. Report of the Alkali-Chlorine Committee for 1945, **89,** 37 (1946)
Cottrell, Samuel. (D), **86,** 142 (1944)
Cottrell, Samuel, *et al.* Economic Factors in Operation of Cylindrical Chlorine Cells, **89,** 455 (1946)
Cottrell, Samuel, *et al.* Efficiency Factors of Cylindrical Chlorine Cells, **86,** 107 (1944)
Coyle, John. Extraction of Indium from Complex Lead-Tin Alloys, **85,** 223 (1944)
Coyle, T. G. (D), **88,** 279 (1945)
Cox, R. B. (D), **90,** 340 (1946)
Craig, D. N. (D), **90,** 403, 440 (1946)
Craig, D. N., *et al.* Lead Dioxide Cell Containing Various Electrolytes, **90,** 405 (1946)
Craig, D. N., *et al.* Study of Equilibrium Reactions in the Leclanché Dry Cell, **90,** 509 (1946)
Crandall, W. B. (D), **98,** 511, 512 (1951)
Crane, E. V., and Bureau, A. G. Presses and Processes for Metal Powder Products, **85,** 63 (1944)
Creighton, H. J. Electrochemistry's Role in World War II, **90,** 15 (1946)
Creighton, H. J. (D), **92,** 334 (1947)
Critchett, J. H., and Lee, H. R. Frederick Mark Becket, An Appreciation, **82,** 34 (1942)
Crosby, H. L., and Gilbertson, L. I. Adherence of Thick Silver Plate on Steel. II, **82,** 101 (1942)
Crosby, H. L., and Gilbertson, L. I. Structure of Brush-Plated Silver, **82,** 187 (1942)
Cubicciotti, D. (D), **96,** 381, 387 (1949)
Cudd, H. H. (D), **85,** 151 (1944)
Culbertson, J. L., and Rutkowski, C. Oxidation of Cerous Sulfate at a Rotating Anode, **81,** 185 (1942)
Culbertson, J. L., and Teach, W. C. Perborate Formation at a Rotating Anode, **81,** 191 (1942)
Curtis, H. S. (D), **86,** 155 (1944)
Cushing, R. E. Color in Electrolytic Caustic Soda (Round Table Discussion), **86,** 35 (1944)
Cushing, R. E. (D), **98,** 257 (1951)
Cuthbertson, J. W., and Angles, R. M. Electro leposition and Properties of Tin-Zinc Alloys, **94,** 73 (1948)

Dakin, T. W. Electrical Properties of Polyvinyl Acetate (Abstract), **83,** 175 (1943)
Dakin, T. W. (D), **83,** 173, 238, 250 (1943)
Dale, J. J. (D), **97,** 466 (1950)
Dale, R. C., *et al.* Electrolytic Reduction of Acetophenone in Alkaline Solution, **85,** 231 (1944)
Daniel, A. F. (D), **90,** 473 (1946); **92,** 182 (1947)
Darrah, W. A. Electrothermal Ferro-Alloy Production in Brazil, **81,** 57 (1942)
Darrin, Marc. (D), **83,** 375 (1943); **93,** 344 (1948); **94,** 381 (1948)

DARSEY, V. M., and CAVANAGH, W. R. Formation and Application of Phosphate Coatings, **91**, 351 (1947)

DAVIDOFF, CHARLES (D), **87**, 122 (1945)

DAVIS, C. W., *et al.* Electrolytic Cobalt—A Commercially Feasible Process, **91**, 115 (1947)

DAVIS, L. P., *et al.* Improvements in the Electrowinning of Chromium, **97**, 227 (1950)

DAVIS, L. P., *et al.* Pilot-Plant Production of Electrolytic Chromium, **94**, 122 (1948)

DAW, B. G. (D), **84**, 351 (1943); **86**, 417 (1944)

DEBING, L. M. Dielectric Properties of Phenolic Resins and Molded Compositions, **90**, 277 (1946)

DEBING, P. H. (D), **90**, 274 (1946)

DEBYE, P. Reaction Rates in Ionic Solutions, **82**, 265 (1942)

DEBYE, P. (D), **82**, 263, 387, 402 (1942)

DELAHAY, PAUL. Polarographic Method for the Indirect Determination of Polarization Curves for Oxygen Reduction on Various Metals, I. Description of the Method—Case of Platinum, **97**, 198 (1950)

DELAHAY, PAUL. Polarographic Method for the Indirect Determination of Polarization Curves for Oxygen Reduction on Various Metals, II. Application to Nine Common Metals, **97**, 205 (1950)

DELAHAY, PAUL. (D), **98**, 514 (1951)

DELAHAY, PAUL, *et al.* Potential-*p*H Diagram of Lead and its Applications to the Study of Lead Corrosion and to the Lead Storage Battery, **98**, 57 (1951)

DELAHAY, PAUL, *et al.* Potential-*p*H Diagram of Silver: Construction of the Diagram—Its Applications to the Study of the Properties of the Metal, its Compounds, and its Corrosion, **98**, 65 (1951)

DELAHAY, PAUL, *et al.* Potential-*p*H Diagram of Zinc and Its Applications to the Study of Zinc Corrosion, **98**, 101 (1951)

DELISLE, LAURENCE. Bonding Metal Particles by Heat Alone without Pressure, **85**, 135 (1944)

DELISLE, LAURENCE, and FINK, C. G. Why Not a 50:50 Cobalt-Copper Solid Solution Alloy? II. Application of Powder Metallurgy, **85**, 123 (1944)

DEMARCHI, V. S. (D), **84**, 95 (1953)

DE MENT, J. (D), **81**, 209 (1942)

DENISON, I. A. Characteristics of a Silver-Peroxide-Zinc Primary Cell, **90**, 387 (1946)

DENISON, I. A. Electrolytic Behavior of Ferrous and Non-Ferrous Metals in Soil-Corrosion Circuits, **81**, 435 (1942)

DE NORA, VITTORIO. Voltage Balance in the Mercury Cell, **97**, 346 (1950)

DEREN, P. (D), **84**, 226 (1943)

DEWALTHOFF, L. (D), **88**, 303 (1945)

DICKINSON, A. G. Electric Power Conversion at the Trail Plants of the Consolidated Mining & Smelting Company of Canada, Limited, **90**, 197 (1946)

DIGGIN, M. B. Review of Corrosion Literature for 1945: Electrodeposited Coatings, **89**, 48 (1946)

DIGGIN, M. B. (D), **85**, 117 (1944); **86**, 413, 417 (1944); **88**, 288 (1945)

DIGHTON, A. L., and MILEY, H. A. Parabolic and Logarithmic Oxidation of Copper, **81**, 321 (1942)

DIMON, R. A. (D), **82**, 100 (1942)

DINEEN, EUGENE, *et al.* Electrolytic Reduction of Organic Compounds, V. Cathodic Initiation of Vinyl Polymerization in Acrylic Acid, Methyl Acrylate, and Methacrylate. Carbonyl Reduction in Crotonic Acid, **96**, 226 (1949)

DINGLEY, W., and ROGERS, R. R. Effect of Small Lead and Silver Additions on the Corrosion Resistance of Castings of Magnesium and Certain of its Alloys at Elevated Temperature and High Humidity, **91**, 693 (1947)

DIRKSE, T. P., *et al.* Characteristics of the Silver Oxide-Zinc-Alkali Primary Cell, **90**, 467 (1946)

DITTRICK, C. H. (D), **88**, 169, 170 (1945)

DOKRAS, V. M., and FINK, C. G. Electrodeposition and Electrowinning of Germanium, **95**, 80 (1949)

DOLE, MALCOLM. Diffusion Theory of the Codeposition of Gold and Copper, **82**, 241 (1942)

DOLE, MALCOLM. (D), **82**, 296, 305, 339 (1942)

DOLINKO, L. (D), **88**, 220 (1945)

DONOHO, C. K., and CARTER, S. F. Acid Electric Steel for Castings, **91**, 167 (1947)

DOTSON, O. E. (D), **88**, 225, 226 (1945)

DRAKE, A. E., *et al.* Thermodynamic Studies of Dilute Solutions in Molten Binary Alloys, **89**, 357 (1946)

DRAVNIEKS, ANDREW, and MCDONALD, H. J. Electropotentials in Growing Halide and Oxide Layers on Metals, **93**, 177 (1948)

DRAVNIEKS, ANDREW, and MCDONALD, H. J. Zone of Metal Phase Consumption in Gas-Metal Reactions, **94**, 139 (1948)

DRESDNER, R. D., *et al.* Electrochemical Process for the Production of Fluorocarbons, IV. From Oxygen Containing Compounds, **95**, 59 (1949)

DRESDNER, R. D., and SIMONS, J. H. Electrochemical Process for the Production of Fluorocarbons, V. From Hydrocarbons, **95**, 64 (1949)

DUBPERNELL, G. (D) **94**, 372, 373, 381 (1948)

DUMONT, C. S. (D), **88**, 159, 160 (1945)

DUNN, P. S. (D), **86**, 106, 126, 141 (1944)

DUROSE, A. H. Protective Value of Lead and Lead-Tin Deposits on Steel, **89**, 417 (1946)

DUROSE, A. H. (D), **89**, 415 (1946)

DUWEZ, POL, *et al.* Zirconia-Yttria System, **98**, 356 (1951)

DUWEZ, POL, and ODELL, FRANCIS. Phase Relationships in the Binary Systems of Nitrides and Carbides of Zirconium, Columbium, Titanium, and Vanadium, **97**, 299 (1950)

ECKFELDT, E. L. (D), **90**, 227 (1946)

ECKFELDT, E. L., and PERLEY, G. A. Measurement of and Effect of Temperature on Electrical Resistance of Glass Electrodes, **98**, 37 (1951)

EDELBERG, ROBERT, and HAZEL, FRED. Streaming Potential Measurements with Phosphors, **96**, 13 (1949)

EDSBERG, R. L., *et al.* Application of the Dropping Mercury Electrode to Diazo Chemistry, **97**, 166 (1950)

EDWARDS, J. D. Anodic and Surface Conversion Coatings on Metals, **81**, 341 (1942)

EDWARDS, J. D. (D), **83**, 238, 239 (1943)

EDWARDS, J. D., *et al.* Anodic Coatings with Crystalline Structure on Aluminum, **88**, 325 (1945)

EDWARDS, J. D., and KELLER, F. (D), **94**, 405 (1948)

EHLEN, W. J. (D), **82**, 132 (1942); **84**, 343 (1943)

EHRLINGER, D. B., *et al.* Electrodeposition Behavior of Traces of Silver, **95**, 33 (1949)

ELDREDGE, G. G., and MEARS, R. B. Use of Inhibitors for Aluminum Chemical Equipment, **83**, 403 (1943)

ELDRIDGE, C. H. (D), **91**, 405 (1947)

ELLEFSEN, TONNES. "Elkem" Rotating Hearth Furnace for Electrothermic Process, **89**, 307 (1946)

ELLIS, G. B. (D), **90**, 464, 465 (1946); **92**, 221 (1947)

ELOFSON, R. M., *et al.* Application of the Dropping Mercury Electrode to Diazo Chemistry, **97**, 166 (1950)

ENCK, E. G. (D), **89**, 275 (1946); **91**, 295, 296, 297 (1947)

ENDICOTT, T. (D), **92**, 76 (1947)

ERASMUS, H. DEW., and PERSSON, J. A. Preparation and Properties of Silicon Monoxide, **95**, 316 (1949)

ERWAY, N. D., and SEIFERT, R. L. Vapor Pressure of Beryllium Oxide, **98**, 83 (1951)

ESCOFFERY, C. A. Some Chemical and Physical Problems in the Manufacture of Selenium Rectifiers, **90**, 129 (1946)

ESCOFFERY, C. A. and HALPERIN, S. Studies on the Polymorphic Transformation of Selenium, **90**, 163 (1946)

ESSIG, S. F. Metal Lusters: Their Characteristics and Limitations in Vacuum Tube Applications, **87**, 309 (1945)

EVANS, L. W., *et al.* Fluorescence of Atomic Silver in Glasses and Crystals, **95**, 70 (1949)

EVANS, U. R. Laws Governing the Growth of Films on Metals, **83**, 335 (1943)

Evans, U. R. Mechanism of Oxidation and Tarnishing, **91,** 547 (1947)

Evans, U. R. (D), **81,** 407 (1942); **83,** 251, 316, 400 (1943); **86,** 244 (1944); **87,** 231, 498 (1945); **88,** 261 (1945); **89,** 120, 165, 192 (1946); **90,** 161 (1946); **91,** 679 (1947); **93,** 364 (1948); **94,** 367, 370 (1948); **95,** 345 (1949); **98,** 260, 514 (1951)

Evans, W. V., and Pearson, Ralph. Electrolysis of the Nitroparaffins, **84,** 173 (1943)

Evans, W. V., and Pearson, Ralph. Electrolysis of Grignard Reagents: Short-Lived Free Radicals in Ethyl Ether, **82,** 297 (1942)

Everts, A. H., and Bagley, G. D. Physical and Electrical Properties of Calcium, **93,** 265 (1948)

Fajans, Kasimir. (D), **82,** 271, 304, 305 (1942)

Fajans, Kasimir, and Johnson, Oliver. Ion-Solvent Interaction and Individual Properties of Electrolytes, **82,** 273 (1942)

Fang, C. C., and Straumanis, M. E. Structure of Metal Deposits Obtained by Electrochemical Displacement upon Zinc, **98,** 9 (1951)

Faust, C. L. Modern Industries Depend on Electroprocesses, **98,** 133*C* (1951)

Faust, C. L. What Can The Electrochemical Society Contribute? Presidential Address, **98,** 91*C* (1951)

Faust, C. L. (D), **81,** 208 (1942); **82,** 151, 226, 239 (1942); **84,** 193, 256, 300, 301, 341, 342 (1943); **88,** 289, 304 (1945); **89,** 429, 430 (1946); **91,** 365 (1947); **94,** 392 (1948); **96,** 386 (1949)

Faust, C. L., and Snavely, C. A. Studies on the Structure of Hard Chromium Plate, **97,** 99 (1950)

Fedotov, N. Extraction of Pure Cobalt by Electrolysis, **87,** 547 (1945)

Feeney, R. G., *et al.* Electrowinning of Chromium from Trivalent Salt Solutions, **89,** 443 (1946)

Feinleib, Morris. Electrodeposition of Vinyl Plastics, **88,** 11 (1945)

Feinleib, Morris. (D), **88,** 61, 62, 72 (1945); **94,** 374, 383 (1948); **95,** 351, 363 (1949); **96,** 385 (1949); **98,** 255, 523 (1951)

Feinleib, Morris, and Fink, C. G. Electrodeposition and Electrochemistry of the Deposition of Synthetic Resins, **94,** 309 (1948)

Feldman, N. W. (D), **92,** 155, 215, 227 (1947)

Felger, M. M., and Mathers, F. C. New Addition Agent for the Electrolytic Refining of Tin and Lead, **90,** 81 (1946)

Fenn, E. (D), **92,** 44, 584 (1947)

Ferguson, A. L. The Society Looks at Itself in a Mirror, Presidential Address, **97,** 186*C* (1950)

Ferguson, A. L. (D), **81,** 183, 197 (1942); **82,** 68, 256 (1942); **83,** 239, 250, 251 (1943); **84,** 81 (1943); **85,** 218, 295, 319 (1944); **89,** 145, 146, 204, 430, 441 (1946); **90,** 226, 233, 544 (1946); **91,** 107, 113 (1947); **94,** 369, 398, 403 (1948)

Ferguson, A. L., and Bandes, Herbert. Studies on Overvoltage, XI. Some Unusual Overvoltage Phenomena, **81,** 273 (1942)

Ferguson, A. L., and Bandes Herbert. Studies on Overvoltage, XII. Long-Time Charge and Decay Phenomena, **81,** 291 (1942)

Ferguson, A. L., *et al.* Aging Effects in Copper-Lead Alloy Plating Solutions of the Cyanide-Tartrate Type, **98,** 155 (1951)

Ferguson, A. L., and Hovey, N. W. Electrodeposition of Copper-Lead Alloys, **98,** 146 (1951)

Ferguson, A. L., and Kissin, G. H. Electron Emission and the Photovoltaic Effect: Study of the Photovoltaic Effect for the Electrode: Solution of Sodium in Liquid Ammonia, **89,** 485 (1946)

Ferguson, A. L., and Towns, M. B. Studies on Overvoltage: XIII. Decay of Cathode Potential in Still and Stirred Solutions Saturated with Hydrogen or with Nitrogen, **82,** 307 (1942)

Ferguson, A. L., and Towns, M. B. Studies on Overvoltage, XIV. Study of Hydrogen Decomposition Potentials under Various Conditions in Acid Solutions at Platinized Platinum Electrodes, **82,** 323 (1942)

Ferguson, A. L., and Towns, M. B. Studies on Overvoltage, XV. Study of Decomposition Potentials. Cathodic and Anodic Polarization of a Platinized Platinum Cathode near the Reversible Value in Hydrogen Saturated Acid Solutions, **83,** 271 (1943)

Ferguson, A. L., and Towns, M. B. Studies on Overvoltage, XVI. Cathodic and Anodic Polarization of a Platinized Platinum Cathode near the Reversible Value in Nitrogen Saturated Acid Solutions, **83,** 285 (1943)

Ferrell, D. T., Jr., and Vosburgh, W. C. Proposed Mechanism for the Discharge of the Manganese Dioxide Electrode, **98,** 334 (1951)

Fetterley, G. H. High Temperature Resistivity Measurements on Compressed Granular Refractory Materials, **83,** 191 (1943)

Fillmore, W. W., *et al.* Electrolytic Ozone, **93,** 211 (1948)

Finan, F. B., *et al.* Curing of Lead Storage Battery Plates, **98,** 474 (1951)

Fink, C. G. (D), **81,** 64, 88, 117, 197, 229, 302, 338, 339, 374, 406, 407, 520, 553 (1942); **82,** 57, 58, 100, 109, 110, 111, 132, 305, 352, 387, 388, 389 (1942); **83,** 238, 239, 374 (1943); **84,** 81, 82, 94, 133, 193, 209, 224, 225, 247, 257, 276, 277, 288, 290, 302, 303, 313, 317 (1943); **85,** 162, 190, 191, 212, 254, 306 (1944); **86,** 140, 141, 167, 185, 262, 364, 392, 393, 411, 412, 415, 455 (1944); **88,** 132, 133, 141, 149, 150, 160, 161, 170, 183, 193, 217, 219, 221, 222, 224, 287, 320, 356, 390 (1945); **89,** 165, 216, 225, 258, 355, 430, 477, 494, 508, 509 (1946); **90,** 227, 274, 301, 385, 432, 544 (1946); **91,** 107, 262, 277, 296, 306, 307, 545, 546, 714 (1947); **92,** 426 (1947); **93,** 345, 354 (1948); **94,** 384 (1948)

Fink, C. G., and Delisle, Laurence. Why Not a 50:50 Cobalt-Copper Solid Solution Alloy? II. Application of Powder Metallurgy, **85,** 123 (1944)

Fink, C. G., and Dokras, V. M. Electrodeposition and Electrowinning of Germanium, **95,** 80 (1949)

Fink, C. G., *et al.* Binary Alloys of Indium and Tin, **88,** 229 (1945)

Fink, C. G., *et al.* Zinc Yellow in the Inhibition of Corrosion Fatigue of Steel in Sodium Chloride Solution, **83,** 377 (1943)

Fink, C. G., and Feinleib, Morris. Electrodeposition and Electrochemistry of the Deposition of Synthetic Resins, **94,** 309 (1948)

Fink, C. G., and Golle, H. A. Electrodialysis of Reduced Keratin Solutions, **97,** 59 (1950)

Fink, C. G., and Hutton, J. L. Why Not a 50:50 Cobalt-Copper Solid Solution Alloy? I. Codeposition of Cobalt and Copper, **85,** 119 (1944)

Fink, C. G., and Ma, C. C. Pure Tungsten Direct from Ore, I. Electrolytic Tungsten from Fused Borax and Fused Phosphate Baths, **84,** 33 (1943)

Fink, C. G., and Ma, C. C. Pure Tungsten Direct From Ore, II. Study of Electrolytic Tungsten Crystal Growth in a Fused Electrolyte Bath, **84,** 53 (1943)

Fink, C. G., and Smatko, J. S. Bone Fixation and the Corrosion Resistance of Stainless Steels to the Fluids of the Human Body, **94,** 271 (1948)

Fink, C. G., and Solanki, D. N. Aluminum from a Fused Chloride Bath, **91,** 203 (1947)

Fink, C. G., and Wroughton, D. M. Study in Nitrogen Fixation at Atmospheric Pressures, The Formation of Cyanogen and Hydrocyanic Acid from their Elements, **88,** 25 (1945)

Fink, F. W. (D), **89,** 119 (1946); **91,** 702 (1947)

Finlay, G. R. (D), **98,** 253 (1951)

Firth, C. V. (D), **85,** 116 (1944)

Fischer, E. H. Prestite: Improved Method for Molding Electrical Porcelain (Abstract), **83,** 187 (1943)

Fishel, W. P. (D), **81,** 432 (1942)

Fisher, C. R., *et al.* Air-Depolarized Primary Cell with Caustic Alkali Electrolyte II, **92,** 173 (1947)

Fleischer, Arthur. Sintered Plates for Nickel-Cadmium Batteries, **94,** 289 (1948)

Fleischer, Arthur. (D), **94,** 404 (1948)

Fleischer, Michael. Mineralogy of the Manganese Oxides (Abstract), **86,** 311 (1944)

Fleischer, Michael. (D), **86,** 325 (1944)

Fleischman, Herbert. (D), **93,** 343, 346 361 (1948)

Fletemeyer, L. H. Direct Current Conversion Equipment in the Electrochemical Industry, **81,** 103 (1942)

Fletemeyer, L. H. Load-Regulating System for Synchronous Converters, **83,** 101 (1943)

Flint, R. L., and Tucker, W. M. Effect of Various Surface Treatments in Cleaning and Preparing Copper, Nickel and Steel for Chromium Plating, **88,** 335 (1945)

Fogle, M. E. Temperature Measurement and Control with Solid Photoelectric Cells, **83,** 77 (1943)

Fogle, M. E. (D), **83,** 205, 206 (1943); **84,** 70 (1943); **87,** 123 (1945); **88,** 205, 214, 219, 225, 227, 228 (1945); **90,** 440 (1946); **91,** 263 (1947); **94,** 395 (1948)

Fonda, G. R. Constitution of Zinc Beryllium Silicate Phosphors and Its Effect on Their Luminous Properties, **95,** 304 (1949)

Fonda, G. R. Factors Affecting Phosphorescence Decay of the Zinc Sulfide Phosphors, **87,** 339 (1945)

Fonda, G. R. Review of Articles on Luminescence for 1949, **97,** 3*C* (1950)

Fonda, G. R. Review of Articles on Luminescence for 1950, **98,** 35*C* (1951)

Fonda, G. R. (D), **88,** 214, 223 (1945); **93,** 348, 350 (1948); **96,** 378 (1949)

Fonda, G. R., and Froelich, H. C. Structure of Calcium Silicate Phosphors, **93,** 114 (1948)

Fontana, M. G. (D), **86,** 230, 258 (1944); **89,** 191 (1946); **91,** 621, 622, 691 (1947); **93,** 335 (1948); **97,** 465 (1950)

Fontana, M. G., and Beck, F. H. (D), **95,** 345, 347 (1949)

Foote, N. M. (D), **88,** 215 (1945)

Ford, M. J., and Linford, H. B. Corrosion of Silver in a Water Saturated Chlorine Atmosphere, **93,** 16 (1948)

Forgeng, W. D. Review of Corrosion Literature for 1941, **81,** 13 (1942)

Forster, F. T., *et al.* Corrosion and Growth of Lead-Calcium Alloy Storage Battery Grids as a Function of Calcium Content, **92,** 313 (1947)

Fortner, O. W., and Gilbertson, L. I. Electrolytic Polishing of Silver, **81,** 199 (1942)

Fossum, J. H., and Wawzonek, Stanley. Behavior of γ-Keto and Aldehydo-Acid Derivatives at the Dropping Mercury Electrode, IV. Phthalaldehydic Acid Derivatives, **96,** 234 (1949)

Foster, N. C. Styrene Copolymer Solvent Reacting Varnishes—"Fosterite," **90,** 377 (1946)

Francis, H. T. Electrolytic Thickness Tester for Plated Metal Coatings, **93,** 79 (1948)

Francis, H. T., and Colner, W. H. Cyclic Phenomena Observed in Electropolishing of Silver, **97,** 237 (1950)

Francis, H. T., *et al.* Electrochemical Process for the Production of Fluorocarbons, II. The Electrolysis of Solutions of Organic Substances in Liquid Hydrogen Fluoride, **95,** 53 (1949)

Frantik, R. O., and McDonald, H. J. Thermodynamic Study of the Tin-Antimony System, **88,** 243 (1945)

Frantik, R. O., and McDonald, H. J. Thermodynamic Study of the Tin-Silver System, **88,** 253 (1945)

Frary, F. C. Electrolytic Production of Aluminum, **94,** 31 (1948)

Frary, F. C. (D), **86,** 414, 455 (1944); **93,** 350 (1948)

Freedman, N. S. Electrodeposited Silver on Steel for Glass-to-Metal Seals, **91,** 325 (1947)

Freedman, N. S. (D), **88,** 218, 219, 220, 226, 227 (1945)

Freund, J. M., *et al.* Corrosion of Lead-Indium Diffusion Alloys, **84,** 65 (1943)

Friedman, Maurice, and McCauley, C. E. Ruben Cell—A New Alkaline Primary Dry Cell Battery: Its Design and Manufacture, Electrochemical Principles, Performance Characteristics, and Applications, **92,** 195 (1947)

Froelich, H. C. Chemical and Physical Stability of Silicate Phosphors, **87,** 429 (1945)

Froelich, H. C. Double and Triple Activated Magnesium Pyrophosphate Phosphors, **95,** 254 (1949)

Froelich, H. C. Manganese Activated Calcium Silicate Phosphors, **93,** 101 (1948)

Froelich, H. C. New Ultraviolet Phosphors, **91,** 241 (1947)

Froelich, H. C. (D), **87,** 396 (1945); **88,** 214, 215, 224, 226, 227 (1945); **91,** 284, 296, 307, 308 (1947); **95,** 356, 359, 360 (1949)

Froelich, H. C., and Fonda, G. R. Structure of Calcium Silicate Phosphors, **93,** 114 (1948)

Froelich, H. C., and Margolis, J. M. Calcium Phosphate Phosphor Activated with Cerium and Manganese, **98,** 400 (1951)

Frost, A. A. Adsorption Potentials at Gas-Solid Interfaces, **82,** 259 (1942)

Fry, A. B., and Kirk, R. C. Magnesium Dry Cells, **94,** 277 (1948)

Gabbard, J. L., and Thompson, M. R. Effect of Sodium Hydroxide upon the Electrodeposition of Electrodialyzed Kaolin, **95,** 329 (1949)

Gall, J. F. Current Efficiency in a Series of Electrolytic Cells, **85,** 175 (1944)

Gall, J. F. (D), **83,** 249 (1943); **88,** 205 (1945); **89,** 441 (1946); **90,** 220 (1946)

Gamble, T. S. (D), **91,** 186 (1947)

Gardiner, W. C. (D), **86,** 154 (1944); **92,** 65 (1947)

Gardiner, W. C., and MacMullin, R. B. Electrochemical and Allied Industries of the Niagara Frontier, **86,** 51 (1944)

Garlick, G. F. J., and Bull, C. Thermoluminescence Characteristics of Silicate Phosphors Activated by Manganese and Arsenic, **98,** 371 (1951)

Garlick, G. F. J., and Mason, D. E. Electron Traps and Infrared Stimulation of Phosphors, **96,** 90 (1949)

Gartland, J. W. High Temperature Electric Tube Furnace, **88,** 121 (1945)

Gartland, J. W. (D), **88,** 141, 149, 160, 162, 170 (1945)

Gas, W. (D), **90,** 402 (1946)

Geary, P. A., and Miller, J. G. Solvent Effect on the Electric Moments of Some Amines, **97,** 54 (1950)

Gee, E. A., *et al.* Recent Developments in Titanium, **97,** 49 (1950)

Gemant, Andrew. Nature of Negative Ions in Liquid Hydrocarbons, **94,** 160 (1948)

Gemant, Andrew. (D), **83,** 142, 174 (1943)

Gerds, A. F., *et al.* Uranium Sesquicarbide, **98,** 505 (1951)

Germer, L. H., and White, A. H. Rate of Oxidation of Copper at Room Temperature, **81,** 305 (1942)

Gernes, D. C. (D), **81,** 265, 271 (1942); **93,** 342, 343 (1948)

Gernes, D. C., and Montillon, G. H. Single Metal, Binary and Ternary Alloy Deposition from Thiosulfate Solutions, II. Binary Alloy Deposition of Copper-Nickel, Copper-Cadmium and Copper-Zinc Alloys from Thiosulfate Solutions, **81,** 231 (1942)

Ghen, M. W. (D), **83,** 297 (1943)

Gibb, T. R. P., Jr. Compounds of Hydrogen with Metals and Metalloids, **93,** 198 (1948)

Gilbert, E. C. (D), **87,** 569, 584 (1945)

Gilbert, H. L., *et al.* Large-Scale Laboratory Production of Ductile Zirconium, **94,** 1 (1948)

Gilbert, H. L., *et al.* Recent Progress in the Metallurgy of Malleable Zirconium, **92,** 99 (1947)

Gilbert, H. L., and Kroll, W. J. Melting and Casting Zirconium Metal, **96,** 158 (1949)

Gilbertson, L. I., and Bowen, F. J. Electrodeposition of Silver on Magnesium, **83,** 235 (1943)
Gilbertson, L. I., and Crosby, H. L. Adherence of Thick Silver Plate on Steel. II, **82,** 101 (1942)
Gilbertson, L. I., and Crosby, H. L. Structure of Brush-Plated Silver, **82,** 187 (1942)
Gilbertson, L. I., and Fortner, O. W. Electrolytic Polishing of Silver, **81,** 199 (1942)
Gill, L. L. (D), **94,** 377 (1948)
Gillett, H. W. Rocking Electric Furnace, A Silver Anniversary, Part I. History of the Rocking Furnace up to the Formation of The Detroit Electric Furnace Company, **83,** 207 (1943)
Ginther, R. J. Luminescence of K_3MnCl_6 and KCl (Pb + Mn), **98,** 74 (1951)
Ginther, R. J., *et al.* Fluorescence of Atomic Silver in Glasses and Crystals, **95,** 70 (1949)
Ginther, R. J., *et al.* Manganese-Activated Zinc Beryllium Germanate Phosphors, **96,** 57 (1949)
Ginther, R. J., *et al.* Study of the Mechanism of Sensitized Luminescence of Solids, **97,** 123 (1950)
Ginther, R. J., and Schulman, J. H. (D), **95,** 351 (1949)
Glasser, J. (D), **94,** 369, 388 (1948)
Glasser, L. G. Ultraviolet Method of Continuous Gas Analysis, **97,** 201C (1950)
Glasstone, Samuel. (D), **92,** 368 (1947)
Glasstone, Samuel, *et al.* Electrolytic Oxidation of Thiosulfate in Ethylene Glycol Solution, **84,** 179 (1943)
Glasstone, Samuel, and Stanley, H. E. Electrolytic Oxidation of α-Pinene, Terpinolene and Dipentene, **92,** 327 (1947)
Gleeson, G. W. (D), **87,** 584, 585 (1945)
Glock, C. E. Strip Steel Electroplating with a Sodium Stannate Bath, **84,** 249 (1943)
Glockler, George. Electrochemistry of Gases, Report for 1941, **81,** 33 (1942)
Glockler, George. Electrochemistry of Gases, Report for 1942, **83,** 35 (1943)
Glockler, George. Electrochemistry of Gases, Report for 1943, **85,** 33 (1944)
Glockler, George. Electrochemistry of Gases, Report for 1944, **87,** 42 (1945)
Glockler, George. Electrochemistry of Gases, Report for 1945, **89,** 34 (1946)
Glockler, George. Electrochemistry of Gases, Report for 1946, **91** 37 (1947)
Glockler, George. (D), **84,** 70, 94 (1943); **85,** 94 (1944); **95,** 350 (1949)
Glockler, George, and Hollingsworth, C. A. Acetylene Polymer Produced in Electric Discharge, **84,** 97 (1943)
Glockler, George, and Hollingsworth, C. A. Rate of Oxygen Absorption by Alpha Ray Cuprene, **92,** 401 (1947)
Glockler, George, and Sausville, J. W. Electron Affinity of the Carbon Atom, **95,** 282 (1949)
Glockler, George, and Sausville, J. W. Thermionic Emission from Carbon, **95,** 292 (1949)
Glockler, George, and Walz, A. E. Acetylene Polymer from Silent Discharge: Reactions with Hydrogen Halides, **88,** 63 (1945)
Gluck, J., *et al.* Electrical Conductivity Measurements of Carbon Blacks, **90,** 441 (1946)
Goetz, A., and Holser, A. Electric Resistance and Anisotropy of Artificial Graphite between 290° K. and 12° K., **82,** 391 (1942)
Golle, H. A., and Fink, C. G. Electrodialysis of Reduced Keratin Solutions, **97,** 59 (1950)
Gonser, B. W. (D), **84,** 255 (1943); **98,** 252, 511 (1951)
Gonser, B. W., *et al.* Deposition of Tantalum and Columbium from their Volatilized Halides, **93,** 258 (1948)
Gonser, B. W., *et al.* Preparation and Properties of Pure Titanium, **93,** 271 (1948)
Gonser, B. W., *et al.* Salt-Bath Chromizing, **96,** 262 (1949)
Gonser, B. W., *et al.* Technology of Germanium, **89,** 277 (1946)
Gonser, B. W., *et al.* Vapor-Phase Deposition of Refractory Materials, I. General Conditions and Apparatus, **95,** 318 (1949)
Gonser, B. W., and Schaffert, R. M. Sulfate-Chloride Solution for Iron Electroplating and Electroforming, **84,** 319 (1943)
Goodings, E. P., and Wilson, C. L. Electrolytic Reduction of Cinnamic Acid: Effect of Substituents on the Formation of Bimolecular Product, **88,** 77 (1945)
Goodman, I. S. Welding and Brazing Technics in the Electronic Tube Industry, **87,** 261 (1945)
Goodman, I. S. (D), **88,** 220 (1945)
Goorissen, J., *et al.* Bismuth as Activator in Fluorescent Solids, **96,** 132 (1949)
Gorman, L. J. (D), **83,** 298 (1943)
Gorrell, John. Electrochemist Adopts Automatic Recording Devices Used in Medical Research, **83,** 95 (1943)
Gould, J. C. (D), **85,** 117 (1944)
Graham, A. K. Edwin M. Baker, Obituary, **83,** 48 (1943)
Graham, A. K. (D), **83,** 375 (1943); **84,** 257 (1943); **85,** 254 (1944)
Graham, J. W. (D), **98,** 253, 517 (1951)
Grahame, D. C. Role of the Cation in the Electrical Double Layer, **98,** 343 (1951)
Gray, A. G. (D), **83,** 375 (1943); **94,** 377, 378 (1948)
Gray, D. (D), **88,** 241 (1945); **91,** 107 (1947)
Green, J. R. (D), **83,** 86 (1943)
Greenburg, R. H., *et al.* Curing of Lead Storage Battery Plates, **98,** 474 (1951)
Greenspan, Lawrence. (D), **90,** 416 (1946)
Greer, W. N., and Chaplin, A. L. Some Factors Affecting Automatic *p*H Control, **83,** 67 (1943)
Gregory, E. D., *et al.* Production of Ductile Vanadium by Calcium Reduction of Vanadium Trioxide, **98,** 395 (1951)
Gregory, E. D., *et al.* Quantitative Evaluation of Oxygen in Zirconium, **93,** 235 (1948)
Grier, L. N. (D), **90,** 126 (1946)
Griess, J. C., Jr., *et al.* Electrodeposition Behavior of Traces of Silver, **95,** 33 (1949)
Griess, J. C., Jr., *et al.* Electrodeposition Behavior of Traces of Silver, II. Effects of Electrode History and the Presence of Other Ions, **98,** 447 (1951)
Griess, J. C., Jr., *et al.* Electrodeposition Behavior of Traces of Silver, III. Transition Region between "Trace" and "Macro" Behavior, **98,** 452 (1951)
Griess, J. C., Jr., and Rogers, L. B. Electroseparation of Traces of Silver from Palladium, **95,** 129 (1949)
Griffith, F. S. (D), **92,** 156, 157, 172, 182 (1947)
Griffith, F. S., and Copeland, L. C. Reaction of the Leclanché Dry Cell, **89,** 495 (1946)
Griffith, F. S., *et al.* Preparation of a Dry Cell Depolarizer by Air Oxidation of Manganous Hydroxide, **92,** 127 (1947)
Grimm, H. E., and Marden, J. W. Colin Garfield Fink, **92,** 3 (1947)
Gulbransen, E. A. Kinetics of Oxide Film Formation on Metals and Alloys, **91,** 573 (1947)
Gulbransen, E. A. Oxidation and Evaporation of Magnesium at Temperatures from 400° to 500°C, **87,** 589 (1945)
Gulbransen, E. A. Some Observations on the Formation and Stability of Oxide Films, **82,** 375 (1942)
Gulbransen, E. A. Thin Oxide Films on Iron, **81,** 327 (1942)
Gulbransen, E. A. Transition State Theory of Formation of Thin Oxide Films on Metals, **83,** 301 (1943)
Gulbransen, E. A. (D), **81,** 375, 405, 406, 407 (1942); **91,** 322, 570, 622, 640 (1947); **93,** 338, 353 (1948); **98,** 259 (1951)
Gulbransen, E. A., and Andrew, K. F. Kinetics of the Oxidation of Cobalt, **98,** 241 (1951)
Gulbransen, E. A., and Andrew, K. F. Kinetics of the Reactions of Beryllium with Oxygen and Nitrogen and the Effect of Oxide and Nitride Films on its Vapor Pressure, **97,** 383 (1950)
Gulbransen, E. A., and Andrew, K. F. Kinetics of the Reac-

tions of Vanadium with Oxygen and Nitrogen, **97,** 396 (1950)

GULBRANSEN, E. A., and ANDREW, K. F. Reactions of Zirconium, Titanium, Columbium, and Tantalum with the Gases, Oxygen, Nitrogen, and Hydrogen at Elevated Temperatures, **96,** 364 (1949)

GULBRANSEN, E. A., and HICKMAN, J. W. Electron Diffraction Study of Oxide Films Formed on High Temperature Oxidation Resistant Alloys, **91,** 605 (1947)

GULDNER, W. G., and WOOTEN, L. A. Reactions of Zirconium with Gases at Low Pressure, **93,** 223 (1948)

GURLAND, JOSEPH, *et al.* Preparation and Properties of Pure Titanium, **93,** 271 (1948)

GUTZWILLER, W. E. (D), **86,** 104, 155 (1944); **90,** 128, 196 (1946)

GWATHMEY, A. T. (D), **91,** 604, 640 (1947)

GWATHMEY, A. T., and LEIDHEISER, HENRY, JR. Bright Nickel Plating on Metallic Single Crystals in the Absence of Addition Agent, **98,** 225 (1951)

GWATHMEY, A. T., and LEIDHEISER, HENRY, JR. Influence of Crystal Face on the Electrochemical Properties of a Single Crystal of Copper, **91,** 95 (1947)

HAASE, H. F. (D), **85,** 305 (1944)

HACKERMAN, NORMAN. (D), **89,** 293 (1946); **93,** 344 (1948)

HACKERMAN, NORMAN, and COOK, E. L. Effect of Adsorbed Polar Organic Compounds on Activity of Steel in Acid Solution, **97,** 1 (1950)

HACKERMAN, NORMAN, and HURD, R. M. Dichromate Reduction Rate at a Steel Surface in Air-free, Acetic Acid Solution, **98,** 51 (1951)

HACKERMAN, NORMAN, and MARSHALL, D. I. Corrosion Studies on Electrolytic Chromium, **89,** 195 (1946)

HACKERMAN, NORMAN, and MARSHALL, D. I. Passivity of Chromium, **93,** 49 (1948)

HACKERMAN, NORMAN, and SUDBURY, J. D. Effect of the Addition of Amines on the Electrode Potential of Copper in Buffered Acid Solution, **93,** 191 (1948)

HACKERMAN, NORMAN, and SUDBURY, J. D. Effect of Amines on the Electrode Potential of Mild Steel in Tap Water and Acid Solutions, **97,** 109 (1950)

HADEN, W. L., JR. (D), **85,** 181, 182 (1944)

HADLEY, E. H. (D), **96,** 382 (1949); **98,** 515 (1951)

HADLEY, R. L. (D), **98,** 257 (1951)

HALES, R. A., and SANDERS, M. T. Performance of Electrolytic Cells in the Reduction of Glucose, **96,** 241, (1949)

HALL, NATHANIEL. Developments in Electrodeposition, **87,** 45 (1945)

HALL, NATHANIEL. Developments in Electrodeposition, **89,** 36 (1946)

HALL, NATHANIEL. (D), **84,** 313, 333, 334, 341, 343 (1943); **88,** 287, 288, 320, 321, 356 (1945)

HALL, W. N. (D), **86,** 120 (1944)

HALPERIN, HERMAN. Cathodic Corrosion of Cable Sheaths (Abstract), **83,** 297 (1943)

HALPERIN, HERMAN. Cathodic Corrosion of Cable Sheaths, **87,** 89 (1945)

HALPERIN, HERMAN. (D), **83,** 159 (1943).

HALPERIN, S., and ESCOFFERY, C. A. Studies on the Polymorphic Transformation of Selenium, **90,** 163 (1946)

HAMANN, A. M., and HULSE, R. E. Electrical Hazards in Electrolytic Cell Rooms, **86,** 143 (1944)

HAMER, W. J., *et al.* Service Life of and Gases Evolved from Dry Batteries Stored at 55°C (130°F), **90,** 449 (1946)

HAMILTON, O. H., and MILEY, H. A. Theory of Oxidation and Tarnishing of Metals, II. Growth Laws under More General Conditions, **81,** 413 (1942)

HAMMERQUIST, W. L. (D), **94,** 374, 379, 380 (1948)

HAMMOND, R. B. Report of Alkali-Chlorine Committee for 1942, **83,** 14 (1943)

HAMMOND, R. B. Report of the Alkali-Chlorine Committee for 1943, **85,** 9 (1944)

HAMMOND, R. B. Report of Alkali-Chlorine Committee for 1944, **87,** 8 (1945)

HAMMOND, W. H. Separation of Cadmium from Zinc by Electrochemical Means, **88,** 393 (1945)

HAMPEL, C. A. (D), **88,** 22, 61 (1945); **89,** 260 (1946)

HAMPEL, C. A., and LEPPLA, P. W. Production of Potassium Perchlorate, **92,** 55 (1947)

HANAWALT, J. D., and MCNULTY, R. E. Some Corrosion Characteristics of High Purity Magnesium Alloys, **81,** 423 (1942)

HANLEY, H. R. (D), **82,** 364, 371, 372, 373, 388 (1942); **87,** 585, 586, 587 (1945); **90,** 61, 220 (1946)

HANN, VICTOR. (D), **84,** 95 (1943); **93,** 355 (1948)

HANNAFORD, V. M. B., *et al.* Calcium Antimonates, **97,** 117 (1950)

HANSON, V. F. (D), **82,** 339 (1942)

HANSON, V. F., and LAVIOLETTE, F. G. Location of Ground Faults on Series Electrolytic Cell Systems, **82,** 341 (1942)

HARDY, A. (D), **88,** 217 (1945)

HARDY, A. E. Combination Phosphorometer and Spectroradiometer for Luminescent Materials, **91,** 221 (1947)

HARDY, A. E. Photoconductivity of Zinc-Cadmium Sulfide as Measured with the Cathode-Ray Oscillograph, **87,** 355 (1945)

HARDY, A. E. Winner of Young Author's Prize, 1946, **89,** 3 (1946)

HARDY, A. E. (D), **91,** 283, 284 (1947); **96,** 377 (1949)

HARDY, CHARLES. (D), **85,** 86 (1944)

HARING, H. E. (D), **90,** 540 (1946)

HARING, H. E., *et al.* Corrosion and Growth of Lead-Calcium Alloy Storage Battery Grids as a Function of Calcium Content, **92,** 313 (1947)

HARKER, DAVID. (D), **85,** 252 (1944)

HARLAND, W. J., and SIMONS, J. H. Electrochemical Process for the Production of Fluorocarbons, III. From Hydrogen Fluoride-Soluble Organic Substances, **95,** 55 (1949)

HARNER, H. R., and MUSGRAVE, J. R. New Method for Particle Size Determination in the Sub-Sieve Range, **92,** 579 (1947)

HARRIS, J. C., *et al.* Detection of Soil Removal in Metal Cleaning by the Radioactive Tracer Technique, **97,** 430 (1950)

HARRIS, L. A. (D), **98,** 256 (1951)

HARVEY, W. G. (D), **84,** 107 (1943); **86,** 201 (1944)

HARWOOD, J. J., and SCHULMAN, FRED. Review of "Forum on Corrosion Research" held at Washington, D. C., Nov. 9–10, 1949, **97,** 83C (1950)

HATCH, G. B. (D), **89,** 119, 121 (1946)

HAWKINS, J. E., and REDD, J. B. Reactions of β-Pinene, III. Electrolytic Oxidation, **97,** 178 (1950)

HAYES, E. T., *et al.* Heat Resistance of Zirconium in Several Mediums, **97,** 316 (1950)

HAYES, E. T., and ROBERSON, A. H. Some Effects of Heating Zirconium in Air, Oxygen, and Nitrogen, **96,** 142 (1949)

HAZEL, FRED, and EDELBERG, ROBERT. Streaming Potential Measurements with Phosphors, **96,** 13 (1949)

HAZEL, J. F., and STERICKER, WILLIAM. Effects of Alkaline Detergents on a Magnesium Die Casting Alloy, **98,** 273 (1951)

HAZEN, THOMAS. Dielectric Properties vs. Temperature of Thermosetting Molding Material Preforms at Radio Frequencies, **90,** 263 (1946)

HAZEN, THOMAS, and WANGSGARD, A. P. Q-Meter for Dielectric Measurements on Polyethylene and Other Plastics at Frequencies up to 50 Megacycles, **90,** 361 (1946)

HEILBORN, AXEL. Report of the Chlor-Alkali Committee of the Industrial Electrolytic Division for the Year 1949, **97,** 121C (1950)

HEILBORN, AXEL. (D), **86,** 167 (1944)

HEIMAN, SAMUEL. Deposition of Metals on Aluminum by Immersion from Solutions Containing Fluorides, **95,** 205 (1949)

HEIMAN, SAMUEL. (D), **98,** 516, 517 (1951)

Heise, G. W. Accomplishments of the Medalist, **82,** 5 (1942)
Heise, G. W. Charles Frederick Burgess, Obituary, **87,** 62 (1945)
Heise, G. W. Note on the One Hundred and Fiftieth Anniversary of the Voltaic Pile, **97,** 65C (1950)
Heise, G. W. Pages from the History of the Primary Battery, Presidential Address, **93,** 2*P* (1948)
Heise, G. W. (D), **89,** 505, 506 (1946); **91,** 405 (1947)
Heise, G. W., and Cahoon, N. C. Situs of the Depolarizing Reaction in the Dry Cell, **94,** 214 (1948)
Heise, G. W., *et al.* Air-Depolarized Primary Cell with Caustic Alkali Electrolyte II, **92,** 173 (1947)
Heise, G. W., *et al.* Heavy Duty Chloride-Depolarized Cell, **94,** 99 (1948)
Heller, H. H. Color of Electrolytic Caustic Liquor, **87,** 501 (1945)
Heller, H. H. (D), **86,** 126 (1944)
Hellingman, J. E., and Kroeger, F. A. Blue Luminescence of Zinc Sulfide, **93,** 156 (1948)
Hellingman, J. E., and Kroeger, F. A. Chemical Proof of the Presence of Chlorine in Blue Fluorescent Zinc Sulfide, **95,** 68 (1949)
Hemmendinger, H. (D), **95,** 364 (1949)
Henderson, S. T., and Ranby, P. W. Barium Titanium Phosphate: A New Phosphor, **98,** 479 (1951)
Henle, Maurice. Report of the Power Committee, C. Tennessee Valley Authority Power, **81,** 41 (1942)
Henricks, J. A. Interpretation of Mechanism of Bright Electroplating, **82,** 113 (1942)
Henry, D. E., *et al.* Zirconium and Thorium Electrodes in Discharge Lamps, **91,** 299 (1947)
Henry, D. E., and Rentschler, H. C. Lowering of the Photoelectric Work Function of Zirconium, Titanium, Thorium and Similar Metals by Dissolved Gases, **87,** 289 (1945)
Hergert, W. F., *et al.* Ductile Chromium, **97,** 258 (1950)
Hergert, W. F., *et al.* Improvements in Methods for the Reduction of Zirconium Chloride with Magnesium, **97,** 305 (1950)
Herwig, R. S. (D), **88,** 287, 355, 390 (1945)
Herzer, R. W. Report of the Power Committee, B. Power Developments of the Dominion of Canada, **81,** 40 (1942)
Herzer, R. W. (D), **97,** 471 (1950)
Heston, B. O., *et al.* Electrolytic Oxidation of Thiosulfate in Ethylene Glycol Solution, **84,** 179 (1943)
Hickling, A., and Wilson, W. H. Anodic Decomposition of Hydrogen Peroxide, **98,** 425 (1951)
Hickman, J. (D), **91,** 639 (1947)
Hickman, J. W., and Gulbransen, E. A. Electron Diffraction Study of Oxide Films Formed on High Temperature Oxidation Resistant Alloys, **91,** 605 (1947)
Higbie, K. B., *et al.* Electrodeposition of Zinc on Zinc Starting Sheets, **96,** 335 (1949)
Higbie, K. B., and Ware, G. C. Relative Reliability of Aluminum and Zinc Starting Sheets for the Electrodeposition of Zinc, **97,** 425 (1950)
Hildyard, J. M. Instrumentation in a Modern Chlorine Handling Plant, **97,** 367 (1950)
Hill, C. G. A., and Klasens, H. A. Influence of Temperature on the Efficiencies of Zinc Sulfide Phosphors Containing Silver and Cobalt, **96,** 275 (1949)
Hinckley, A. T. (D), **81,** 102 (1942)
Hindall, A. L. (D), **92,** 279 (1947)
Hitchcock, L. B. Report of Alkali-Chlorine Committee for 1941, **81,** 9 (1942)
Hixson, A. W. Leo Hendrik Baekeland, Obituary, **85,** 54 (1944)
Hoar, T. P. (D), **98,** 510 (1951)
Hochberg, Melvin, and King, C. V. Rate of Corrosion of Metals in Acid Solutions Containing Depolarizers, **97,** 191 (1950)
Hoeckelman, R. F., *et al.* Salt-Bath Chromizing, **96,** 262 (1949)
Hoff, E. R., *et al.* Anode Problem in the Electrodeposition of Manganese Dioxide, **86,** 337 (1944)
Hogaboom, G. B. (D), **94,** 376 (1948)
Hogaboom, G. B., Jr. (D), **82,** 67, 68 (1942)
Hogaboom, G. B., Sr. (D), **81,** 210 (1942); **82,** 74 (1942); **84,** 255, 289, 314, 340, 342 (1943); **86,** 411, 412, 416, 429 (1944); **88,** 289, 291, 303, 304, 322, 356, 389, 390, 391 (1945)
Hogg, J. A., *et al.* Electrochemical Process for the Production of Fluorocarbons, II. The Electrolysis of Solutions of Organic Substances in Liquid Hydrogen Fluoride, **95,** 53 (1949)
Hoglund, P. F., *et al.* Electrodeposition of Cobalt-Tungsten Alloys from Acid Plating Bath, **84,** 353 (1943)
Hoglund, P. F., and Holt, M. L. Electrodeposition of Nickel-Cobalt-Tungsten Alloys from an Acid Plating Bath, **88,** 359 (1945)
Holler, H. D. Observations on the Failure of 80 Nickel-20 Chromium Alloy at Excessive Temperatures, **92,** 91 (1947)
Holler, H. D. Studies on Galvanic Couples, I. Measurement of Electromotive Force and Internal Resistance of Cells during Current Flow, **97,** 271 (1950)
Holler, H. D. Studies on Galvanic Couples, II. Some Potential-Current Relations in Galvanic Corrosion, **97,** 277 (1950)
Holler, H. D. Studies on Galvanic Couples, III. Polarization and Cathodic Protection, **97,** 453 (1950)
Hollingsworth, C. A., and Glockler, George. Acetylene Polymer Produced in the Electric Discharge, **84,** 97 (1943)
Hollingsworth, C. A., and Glockler, George. Rate of Oxygen Absorption by Alpha Ray Cuprene, **92,** 401 (1947)
Holman, E. R. (D), **88,** 293 (1945)
Holman, J. C. M. (D), **94,** 401 (1948)
Holmes, H. P., *et al.* Large-Scale Laboratory Production of Ductile Zirconium, **94,** 1 (1948)
Holmes, H. P., *et al.* Production of Fused Silica, **92,** 115 (1947)
Holmes, H. P., *et al.* Recent Progress in the Metallurgy of Malleable Zirconium, **92,** 99 (1947)
Holser, A., and Goetz, A. Electric Resistance and Anisotropy of Artificial Graphite between 290° K and 12° K, **82,** 391 (1942)
Holt, M. L. Attempts to Electrodeposit Zirconium, **98,** 330 (1951)
Holt, M. L. (D), **95,** 351 (1949); **98,** 256, 259 (1951)
Holt, M. L., and Black, R. E. Electrodeposition of Iron-Tungsten Alloys from an Acid Plating Bath, **82,** 205 (1942)
Holt, M. L., and Clark, W. E. Electrodeposition of Cobalt-Tungsten Alloys from a Citrate Bath, **94,** 244 (1948)
Holt, M. L., *et al.* Electrodeposition of Cobalt-Tungsten Alloys from Acid Plating Bath, **84,** 353 (1943)
Holt, M. L., and Hoglund, P. F. Electrodeposition of Nickel-Cobalt-Tungsten Alloys from an Acid Plating Bath, **88,** 359 (1945)
Holt, M. L., and Lietzke, M. H. Codeposition of Tungsten and Iron from an Aqueous Ammoniacal Citrate Bath, **94,** 252 (1948)
Holt, M. L., and Netherton, L. E. Electrodeposition of Rhenium from Aqueous Solutions, **95,** 324 (1949)
Holt, M. L., and Netherton, L. E. Electrodeposition of Rhenium-Nickel Alloys, **98,** 106 (1951)
Holt, M. L., and Nielsen, M. L. Cathode Films in Tungstate-Containing Plating Baths, **82,** 217 (1942)
Holt, M. L., and Nielsen, M. L. Electrodeposition of Nickel-Tungsten Alloys from an Acid Plating Bath, **82,** 193 (1942)
Holt, M. L., and Seim, H. J. Attempts to Electrodeposit Tantalum, **96,** 43 (1949)
Holt, M. L., and Seim, H. J. Electrodeposition of Molybdenum Alloys, **96,** 205 (1949)
Holt, M. L., and Swalheim, D. A. Solubility of Nickel Ions in Aqueous Alkaline Carbonate-Tungstate Solutions, **81,** 251 (1942)
Holt, M. L., and Vaaler, L. E. Codeposition of Tungsten

and Nickel from an Aqueous Ammoniacal Citrate Bath, **90,** 43 (1946)

Holt, M. L., and Vaaler, L. E. Electrolytic Reduction of Aqueous Tungstate Solutions, **94,** 50 (1948)

Homme, V. E., *et al.* Improvements in the Electrowinning of Chromium, **97,** 227 (1950)

Homme, V. E., *et al.* Pilot-Plant Production of Electrolytic Chromium, **94,** 122 (1948)

Hopkins, B. S. Electrochemistry of the Rare Earth Group, **89,** 295 (1946)

Hopkins, B. S. (D), **89,** 214 (1946)

Hopkins, B. S., and Moeller, Therald. Electrochemistry of Indium, **93,** 84 (1948)

Hopkins, D. W. Reaction Between Solids; The Formation of Zinc Ferrite from Zinc Oxide and Ferric Oxide, **96,** 195 (1949)

Hopper, E. W. Development of Crucible Steel Electrolytic Tin Plate Process, **84,** 187 (1943)

Hopper, E. W. (D), **82,** 95, 96, 225 (1942); **84,** 256 (1943); **86,** 414 (1944)

Hopper, J. H. (D), **84,** 276 (1943)

Hornbeck, R. D., *et al.* Production of Ozone with Refrigerated Anodes, **98,** 134 (1951)

Hotersall, A. W. (D), **88,** 369 (1945)

Hothersall, A. W. (D), **88,** 288, 323 (1945)

Housley, J. E., and Studley, J. H. Aspects of the Operation of Mercury Arc Rectifier Stations, **86,** 169 (1944)

Hovey, N. W., *et al.* Aging Effects in Copper-Lead Alloy Plating Solutions of the Cyanide-Tartrate Type, **98,** 155 (1951)

Hovey, N. W., and Ferguson, A. L. Electrodeposition of Copper-Lead Alloys, **98,** 146 (1951)

Hovorka, Frank, *et al.* Effect of Ionic Addition Agents on the Polarization of Electrodeposition of Copper, **94,** 341 (1948)

Hovorka, Frank, *et al.* Electronic Instrumentation for Overvoltage Measurements, **98,** 68 (1951)

Hovorka, Frank, *et al.* Thermodynamic Studies of Dilute Solutions in Molten Binary Alloys, **89,** 357 (1946)

Hovorka, Frank, and Schaefer, R. A. Electromotive-Force Measurements of Molten Binary Alloys, **87,** 479 (1945)

Hovorka, Frank, and Yeager, Ernest. Effect of Acoustical Radiations on the Hydrogen Electrode, **98,** 14 (1951)

Howard, P. L. (D), **90,** 402, 403 (1946)

Howard, P. L., and Mullen, J. B. Characteristics of the Silver Chloride-Magnesium Water Activated Battery, **90,** 529 (1946)

Howe, H. E., and Smith, A. A., Jr. Properties and Uses of Thallium, **97,** 167*C* (1950)

Hubbard, D. O. (D), **89,** 258, 260 (1946)

Huddle, A. U. (D), **87,** 233 (1945)

Huenerfauth, G. E. Flexibility of the Cuprous Oxide Rectifier for Automatic Control Equipment in Electroplating, **83,** 87 (1943)

Hugus, Z. Z., Jr., and Latimer, W. M. Heat of Oxidation of Manganous Ion to Permanganate and the Manganese Potentials, **98,** 296 (1951)

Hull, R. O. (D), **82,** 74, 226 (1942)

Hulse, R. E., and Hamann, A. M. Electrical Hazards in Electrolytic Cell Rooms, **86,** 143 (1944)

Hunt, B. G. New Electrolytic Cell for Magnesium and Chlorine Production, **94,** 151 (1948)

Hunter, M. J., *et al.* Silicones as Electric Insulating Materials, **90,** 311 (1946)

Hunter, R. M. Electrochemistry of the Dow Magnesium Process, **86,** 21 (1944)

Hunter, R. M. (D), **81,** 116 (1942); **82,** 364, 396 (1942); **85,** 190, 191 (1944); **86,** 105, 139, 140, 155 (1944); **89,** 258 (1946); **90,** 108, 126, 196, 210 (1946); **92,** 64, 65 (1947); **93,** 343 (1948); **94,** 388 (1948)

Huntley, A. K. (D), **86,** 323, 364 (1944)

Hurd, R. M., and Hackerman, Norman. Dichromate Reduction Rate at a Steel Surface in Air-free, Acetic Acid Solution, **98,** 51 (1951)

Hurley, F. H., and Wier, T. P., Jr. Electrodeposition of Aluminum from Nonaqueous Solutions at Room Temperature, **98,** 207 (1951)

Hurley, F. H., and Wier, T. P., Jr. Electrodeposition of Metals from Fused Quaternary Ammonium Salts, **98,** 203 (1951)

Hurtgen, A. (D), **91,** 153 (1947)

Hutton, J. L., and Fink, C. G. Why Not a 50:50 Cobalt-Copper Solid Solution Alloy? I. Codeposition of Cobalt and Copper, **85,** 119 (1944)

Ignatowicz, S., and Bockris, J. O'M. Some Observations on Decomposition Voltages, **92,** 465 (1947)

Ihrig, H. K. High Temperature Corrosion of Metals Under Alternate Carburization and Oxidation, **91,** 641 (1947)

Ihrig, H. K. (D), **91,** 621, 678 (1947)

Imboden, R. L., and Sibley, R. S. Anodic Polishing of Plain Carbon Steels, **82,** 227 (1942)

Jacobs, H. (D), **91,** 262, 283, 307 (1947)

Jacobs, Harold, and LaRocque, A. P. Minimum Sparking Potentials of Barium, Magnesium, and Aluminum in Helium, **91,** 337 (1947)

Jacobs, H. J. (D), **91,** 240 (1947)

Jacobs, J. H. Effect of Cell Variables on the Electrowinning of Manganese, **90,** 211 (1946)

Jacobs, J. H., and Churchward, P. E. Electrowinning of Manganese from Chloride Electrolytes, **94,** 108 (1948).

Jacobs, J. H., *et al.* Effect of Certain Variables on the Electrodeposition of Manganese, **86,** 383 (1944)

Jacobson, M. (D), **92,** 584 (1947)

Jacquet, P. A. (D), **91,** 108 (1947); **95,** 352 (1949); **97,** 468 (1950); **98,** 252 (1951)

Jaffe, S. S., and Weisz, R. S. Mechanism of the Reduction of Oxygen at the Air Electrode, **93,** 128 (1948)

Jaffee, R. I., *et al.* Preparation and Properties of Pure Titanium, **93,** 271 (1948)

Jaffee, R. I., *et al.* Technology of Germanium, **89,** 277 (1946)

Janes, Milton. Graphite Anodes in Brine Electrolysis, II. Application to Chlorate Cells, **92,** 23 (1947)

Janes, Milton. (D), **92,** 63, 64 (1947); **95,** 351 (1949)

Jenkins, H. G., *et al.* Alkaline Earth Halophosphates and Related Phosphors, **96,** 1 (1949)

Jenkins, H. G., and McKeag, A. H. Some Rare Earth Activated Phosphors, **97,** 415 (1950)

Jensen, Otto. Mechanical Rectifier: The Contact Converter as Developed by Siemens-Schuckert in Berlin, Germany, **90,** 93 (1946)

Jernstedt, George. High-Speed Analysis and Control of Plating Solutions, **82,** 135 (1942)

Jernstedt, George. Phosphate Coatings with Unusual Corrosion Resistance, **83,** 361 (1943)

Jernstedt, George. (D), **82,** 68, 132 (1942)

Jerome, C. W. Effect of Temperature on Emission of Fluorescent Lamp Phosphors, **98,** 376 (1951)

Jerome, C. W., and Butler, K. H. Calcium Halophosphate Phosphors, I. Analysis of Emission Spectra, **97,** 265 (1950)

Jette, E. R., *et al.* Binary Alloys of Indium and Tin, **88,** 229 (1945)

Johnson, G. (D), **89,** 430 (1946)

Johnson, N. J. Graphite Anodes in Brine Electrolysis, Influence of Cell Operating Conditions on Graphite Anode Consumption Rate, **86,** 127 (1944)

Johnson, Oliver, and Fajans, Kasimir. Ion-Solvent Interaction and Individual Properties of Electrolytes, **82,** 273 (1942)

Johnson, P. H., and Mathers, F. C. New Work on Tin Plating from Ammonium Stannous Oxalate, **81,** 267 (1942)

Johnson, R. A., and Kolthoff, I. M. Amperometric Titrations

of Sn^{IV} and Hg^{II} with Tetraphenylarsonium Chloride, **98,** 231 (1951)

JOHNSON, R. A., and KOLTHOFF, I. M. Amperometric Titrations with *m*-Nitrophenylarsonic Acid, **98,** 138 (1951)

JONES, SHANNON. Alumina-Lithia-Iron Oxide Phosphor, **95,** 295 (1949)

JONES, SHANNON. Effect of Thermal History on Color of Zinc Beryllium Silicate (Mn) Phosphors, **97,** 25 (1950)

JORGUERA, G. A. (D), **87,** 585 (1945)

KAESTLE, F. L. (D), **90,** 126 (1946)

KALISCHER, P. R. Determination of Particle Size in Powder Metallurgy, **85,** 153 (1944)

KAMP, R. E., *et al.* Detection of Soil Removal in Metal Cleaning by the Radioactive Tracer Technique, **97,** 430 (1950)

KANNER, OSCAR. Simple Derivation of the Limiting Current with the Dropping Mercury Electrode by Dimensional Analysis, **91,** 111 (1947)

KASPER, CHARLES. Theory of the Potential and Technical Practice of Electrodeposition, V. Two-Dimensional Rectangular Enclosures, **82,** 153 (1942)

KATSURAI, TOMINOSUKE, *et al.* Electron Diffraction Studies on the Nature of the Corrosion Resistance of Stainless Steel: On the Ferrous Nickel Chromate Formed on the Surface of Stainless Steel, **95,** 21 (1949)

KATZ, SIGMUND, *et al.* Binary Alloys of Indium and Tin, **88,** 229 (1945)

KAUFMAN, K. (D), **86,** 363 (1944)

KAUFMANN, C., *et al.* Electrical Conductivity Measurements of Carbon Blacks, **90,** 441 (1946)

KAUPPI, T. A., *et al.* Silicones as Electrical Insulating Materials, **90,** 311 (1946)

KAWECKI, H. C. Production of Beryllium Compounds, Metal and Alloys, **89,** 229 (1946)

KAWECKI, H. C. (D), **89,** 258, 259 (1946)

KEATING, F. H. (D), **86,** 242 (1944)

KELLER, F. A. (D), **86,** 325, 363 (1944)

KELLER, FRED, and EDWARDS, J. D. (D), **94,** 405 (1948)

KELLER, FRED, and ZELLEY, W. G. Conditioning Aluminum Alloys for Electroplating, **97,** 143 (1950)

KELLOGG, H. H. Anode Effect in Aqueous Electrolysis, **97,** 133 (1950)

KEMMER, F. R. Ferro-Alloys in Australia and Notes on Other Metallurgical Developments There, **81,** 65 (1942)

KENDALL, V. V. (D), **87,** 254 (1945)

KENNEDY, D. J., and BARKER, W. E. Reduction of Acetylene to Ethylene by Chromous Chloride, **92,** 391 (1947)

KENNEDY, D. J., and CADENHEAD, A. F. G. (D), **81,** 197 (1942)

KENNEDY, T. R. (D), **88,** 141 (1945)

KENT, G. H., and BIDGOOD, E. S. Cataphoresis and Alundum Coatings, **87,** 321 (1945)

KENTY, C. (D), **88,** 212 (1945)

KENTY, CARL, and COOPER, J. R. Study of the Effects of Gas Impurities in Fluorescent Lamps, **87,** 397 (1945)

KERFMAN, H. D., *et al.* Electrolytic Reduction of Acetophenone in Alkaline Solution, **85,** 231 (1944)

KERFMAN, H. D., and SWANN, SHERLOCK, JR. Electrolytic Reduction of Carbonyl Compounds at Carbon Cathodes, **92,** 427 (1947)

KERMER, M. J. Continuous Concentration of Electrolytic Caustic Soda, **86,** 157 (1944)

KIESSLING, ROLAND. Borides of Some Transition Elements, **98,** 166 (1951)

KING, A. S. Scandium in the Stars, **89,** 301 (1946)

KING, C. V., and HOCHBERG, MELVIN. Rate of Corrosion of Metals in Acid Solutions Containing Depolarizers, **97,** 191 (1950)

KING, C. V., and SALZBERG, HUGH. Rate of Corrosion of Silver in Solutions of Ferric Sulfate, **97,** 290 (1950)

KING, E. B. (D), **83,** 298 (1943)

KIRCHER, M. S., and MURRAY, R. L. Current Efficiency Studies of the Hooker Type S Chlorine Cell, **86,** 83 (1944)

KIRK, E. L. Electric Metering of Electrolytic Pot Lines, **90,** 111 (1946)

KIRK, E. L. (D), **90,** 210 (1946)

KIRK, R. C., and FRY, A. B. Magnesium Dry Cells, **94,** 277 (1948)

KIRKPATRICK, G. P., and BYLER, W. H. Decay of Phosphorescence and the Mechanism of Luminescence of Zinc Sulfide Phosphors, **95,** 194 (1949)

KIRKPATRICK, S. D. The Award of the Edward Goodrich Acheson Medal and Prize, **86,** 4 (1944)

KIRKPATRICK, S. D. Charles Frederick Burgess: Electrochemist—Engineer—Teacher—Industrialist, **82,** 11 (1942)

KIRKPATRICK, S. D. Presidential Address: Postwar Trends in the Electrochemical Industries, **87,** 65 (1945)

KISSIN, G. H. (D), **95,** 349 (1949); **96,** 384, 385 (1949)

KISSIN, G. H., and FERGUSON, A. L. Electron Emission and the Photovoltaic Effect: Study of the Photovoltaic Effect for the Electrode: Solution of Sodium in Liquid Ammonia, **89,** 485 (1946)

KJELLGREN, B. R. F. Production of Beryllium, **93,** 122 (1948)

KJELLGREN, B. R. F. Production of Beryllium Oxide and Beryllium Copper, **89,** 247 (1946)

KJELLGREN, B. R. F. (D), **89,** 236 (1946)

KLASENS, H. A., and HILL, C. G. A. Influence of Temperature on the Efficiencies of Zinc Sulfide Phosphors Containing Silver and Cobalt, **96,** 275 (1949)

KLEINER, W. B. (D), **98,** 258 (1951)

KLICK, C. C., *et al.* Study of the Mechanism of Sensitized Luminescence of Solids, **97,** 123 (1950)

KNAPP, B. B. Review of Corrosion Literature for 1945: Theory of Corrosion, **89,** 43 (1946)

KNICKERBOCKER, R. G., *et al.* Effect of Certain Variables on the Electrodeposition of Manganese, **86,** 383 (1944)

KNICKERBOCKER, R. G., *et al.* Study of Impurities in Cobalt Electrowinning, **85,** 193 (1944)

KNOETGEN, HELEN, *et al.* Rate of Dissolution of Silver in Aqueous Ceric Sulfate Solutions, **98,** 31 (1951)

KOBE, K. A., and MAY, J. A. Electrolytic Reduction of Salicylic and Acetylsalicylic Acids to the Corresponding Aldehydes, **97,** 183 (1950)

KOHL, W. H. Further Remarks on "A New Method for the Application of Luminescent Screens to Glass Surfaces," **96,** 123 (1949)

KOHMAN, G. T. (D), **83,** 159 (1943)

KOLTHOFF, I. M., and JOHNSON, R. A. Amperometric Titrations of Sn^{IV} and Hg^{II} with Tetraphenylarsonium Chloride, **98,** 231 (1951)

KOLTHOFF, I. M., and JOHNSON, R. A. Amperometric Titrations with *m*-Nitrophenylarsonic Acid, **98,** 138 (1951)

KOPELMAN, BERNARD, and BENDER, HARRY. Dissociation of Beryllium Iodide in Platinum Containers, **98,** 89 (1951)

KOPPEIUS, J. (D), **87,** 353 (1945)

KORBELAK, A. Electrochemical Processes in the Manufacture of Electronic Devices, **87,** 299 (1945)

KORBELAK, A. (D), **88,** 217, 218, 219 (1945)

KOSTER, J. Control of Sulfur in Electrolytic Manganese, **89,** 467 (1946)

KRAMER, M. D., *et al.* Electrodeposition of Cobalt and Nickel from Coordination Compounds, **90,** 55 (1946)

KRAUSE, D. P., *et al.* Electrodeposition Behavior of Traces of Silver, **95,** 33 (1949)

KREIZWALD, J. X. (D), **84,** 290 (1943)

KREMERS, H. E. Rare Earth Industry, **96,** 152 (1949)

KRENTEL, G. S. (D), **82,** 109 (1942)

KROEGER, F. A. (D), **95,** 357 (1949)

KROEGER, F. A., *et al.* Bismuth as Activator in Fluorescent Solids, **96,** 132 (1949)

KROEGER, F. A., and HELLINGMAN, J. E. Blue Luminescence of Zinc Sulfide, **93,** 156 (1948)

KROEGER, F. A., and HELLINGMAN, J. E. Chemical Proof of the Presence of Chlorine in Blue Fluorescent Zinc Sulfide, **95,** 68 (1949)

KROEGER, F. A., and VAN DEN BOOMGAARD, J. Fluorescence of Magnesium Germanate Activated by Manganese, **97,** 377 (1950)

KROEGER, F. A., and ZALM, P. Origin of Multiple Bands in Luminophors Activated by Divalent Manganese, **98,** 177 (1951)

KROHN, ALBERTINE, *et al.* Aging Effects in Copper-Lead Alloy Plating Solutions of the Cyanide-Tartrate Type, **98,** 155 (1951)

KROLL, W. J. Fused Salt Electrolysis for the Production of Metal Powders, **87,** 551 (1945)

KROLL, W. J. Melting and Evaporating Metals in a Vacuum, **87,** 571 (1945)

KROLL, W. J. (D), **88,** 212 (1945); **89,** 214, 260, 261, 382 (1946); **91,** 323 (1947); **93,** 359 (1948); **97,** 462 (1950); **98,** 253 (1951)

KROLL, W. J., *et al.* Ductile Chromium, **97,** 258 (1950)

KROLL, W. J., *et al.* Ductile Zirconium from Zircon Sand, **89,** 263 (1946)

KROLL, W. J., *et al.* Improvements in Methods for the Reduction of Zirconium Chloride with Magnesium, **97,** 305 (1950)

KROLL, W. J., *et al.* Large-Scale Laboratory Production of Ductile Zirconium, **94,** 1 (1948)

KROLL, W. J., *et al.* New Carbon Resistor Furnace, **89,** 317 (1946)

KROLL, W. J., *et al.* Production of Fused Silica, **92,** 115 (1947)

KROLL, W. J., *et al.* Recent Progress in the Metallurgy of Malleable Zirconium, **92,** 99 (1947)

KROLL, W. J., and GILBERT, H. L. Melting and Casting Zirconium Metal, **96,** 158 (1949)

KROLL, W. J., and SCHLECHTEN, A. W. Reactions of Carbon and Metal Oxides in a Vacuum, **93,** 247 (1948)

KRON, E. C. (D), **88,** 149, 150 (1945)

KRONSBEIN, JOHN. Oxygen Efficiency in Anodic Oxidation of Aluminum, **94,** 353 (1948)

KRONSBEIN, JOHN. (D), **82,** 184 (1942)

KROPA, E. (D), **90,** 330 (1946)

KROPA, E. L. Thermosetting Vinyl Polymers, **90,** 247 (1946)

KSYCKI, SISTER M. J., and YNTEMA, L. F. Electrodeposition of Molybdenum from Aqueous Solutions, **96,** 48 (1949)

KUBASCHEWSKI, O., *et al* Free Energy Diagram of the Vanadium-Oxygen System, **98,** 417 (1951)

KUCZYNSKI, G. C., and SCHONFELD, F. Corrosion Characteristics of Some Magnesium-Zinc-Calcium Alloys, **93,** 41 (1948)

KUSHNER, J. B. (D), **94,** 395 (1948)

KWASNEY, E. J., and NICHOLSON, J. H. Scaling at High Temperatures in Sulfur Dioxide, Oxygen and Nitrogen-Containing Atmospheres, **91,** 681 (1947)

LAITINEN, H. A. Electrolytic Study of Linear Diffusion of Silver Salts, **82,** 289 (1942)

LAITINEN, H. A. (D), **82,** 256 (1942)

LANDAU, R. Some Mechanisms of Alloy Corrosion, **81,** 559 (1942)

LANDAU, R. (D), **81,** 407, 432, 452, 482, 520 (1942); **85,** 325 (1944)

LANDAU, R., and OLDACH, C. S. Corrosion of Binary Alloys, **81,** 521 (1942)

LANDER, J. J. Anodic Corrosion of Lead in H_2SO_4 Solutions, **98,** 213 (1951)

LANDER, J. J. Basic Sulfates of Lead, **95,** 174 (1949)

LANDER, J. J. Some Preliminary Studies of Positive Grid Corrosion in the Lead-Acid Cell, **98,** 220 (1951)

LANDER, J. J. (D), **94,** 370 (1948)

LANG, M. (D), **90,** 544 (1946)

LANGLEY, G. R. (D), **90,** 473 (1946)

LAQUE, F. L. (D), **81,** 554 (1942); **84,** 81, 82 (1943); **85,** 303, 306, 319 (1944); **87,** 178 (1945); **89,** 145, 190, 510, 511, 512, 514 (1946); **91,** 653, 702 (1947)

LAQUE, F. L., and CLAPP, W. F. Relationships between Corrosion and Fouling of Copper-Nickel Alloys in Sea Water, **87,** 103 (1945)

LAQUE, F. L., *et al.* Corrosion in Crevices, **89,** 149 (1946)

LARACH, SIMON. Cathodoluminescence Characteristics of Some Barium-Zinc-Silicate Phosphors with Manganese Activator, **98,** 369 (1951)

LAROCQUE, A. P., and JACOBS, HAROLD. Minimum Sparking Potentials of Barium, Magnesium, and Aluminum in Helium, **91,** 337 (1947)

LARRABEE, C. P. Corrosion of Steels in Marine Atmospheres and in Sea Water, **87,** 161 (1945)

LARRABEE, C. P. Corrosion of Steels in Marine Atmospheres and in Sea Water, **89,** 507 (1946)

LARRABEE, C. P. Effect of Specimen Position on Atmospheric Corrosion Testing of Steel, **85,** 297 (1944)

LARRABEE, C. P. (D), **89,** 145, 146 (1946)

LARSEN, E. C. (D), **85,** 151 (1944)

LASH, E. I., *et al.* Production of Ozone with Refrigerated Anodes, **98,** 134 (1951)

LASOF, S. (D), **88,** 205 (1945)

LASOV, S. (D), **88,** 221 (1945)

LATHE, F. E. (D), **86,** 381 (1944)

LATIMER, W. M., and HUGUS, Z. Z., JR. Heat of Oxidation of Manganous Ion to Permanganate and the Manganese Potentials, **98,** 296 (1951)

LAUER, M. R., *et al.* Effect of Ionic Addition Agents on the Polarization of Electrodeposition of Copper, **94,** 341 (1948)

LAVIOLETTE, F. G. (D), **82,** 373 (1942)

LAVIOLETTE, F. G., and HANSON, V. F. Location of Ground Faults on Series Electrolytic Cell Systems, **82,** 341 (1942)

LEE, E. K., and PEARSON, E. P. Electric Conductivity of Molten Chloride Salts, **88,** 171 (1945)

LEE, H. R., and CRITCHETT, J. H. Frederick Mark Becket, An Appreciation, **82,** 34 (1942)

LEE, J. A. Trends and Developments in Electrochemical Industry, Presidential Address, **95,** 2*P* (1949)

LEEDS, M. W., and SMITH, G. B. L. Electrochemical Reduction of Nitroalkanes: Preparation of *N*-Alkylhydroxylamines (Hydroxaminoalkanes), **98,** 129 (1951)

LEFEVRE, G. H. (D), **84,** 289 (1943)

LEIDHEISER, HENRY, JR., and GWATHMEY, A. T. Bright Nickel Plating on Metallic Single Crystals in the Absence of Addition Agent, **98,** 225 (1951)

LEIDHEISER, HENRY, JR., and GWATHMEY, A. T. Influence of Crystal Face on the Electrochemical Properties of a Single Crystal of Copper, **91,** 95 (1947)

LEININGER, ROBERT, and PASIUT, L. A. Effect of Electrolytically Released Halogens on an Absolute Methyl Alcohol Solution of Cinnamic Acid, **88,** 73 (1945)

LEITH, J. A., *et al.* Reaction of Sulfur Dioxide, Water and Oxygen in an Electrolytic Cell, **91,** 133 (1947)

LEMMON, F. D. (D), **88,** 141 (1945)

LEPPLA, P. W., and HAMPEL, C. A. Production of Potassium Perchlorate, **92,** 55 (1947)

LEVIN, HARRY, and BONILLA, C. F. Thermogalvanic Potentials, I. The Application of Thermodynamics to Thermogalvanic Data (A Study of the Silver Chloride Electrode from 25° to 90°C), **98,** 388 (1951)

LEVIN, S. B. (D), **92,** 132, 155, 157 (1947)

LEVINE, J. (D), **88,** 291, 303, 391 (1945)

LEVY, C. C. (D), **81,** 87, 117 (1942); **83,** 231, 232 (1943)

LEWIN, G. Characteristics of the Ag-Cs and Sb-Cs Photoelectric Surfaces, **87,** 331 (1945)

LEWIN, G. (D), **88,** 204, 205, 212, 227 (1945)

LEWIS, B. F. (D), **88,** 293 (1945)

LEWIS, E. D., *et al.* Preparation of Hyper-Pure Silicon, **96,** 359 (1949)

LEWIS, R. W., and BROWN, O. W. Electrolytic Reduction of Trinitro Aromatic Compounds to Triamines by Use of Carrier Catalyst, **84,** 135 (1943)

LEWIS, R. W., *et al.* Electrolytic Reduction of *p*-Nitrobenzoic Acid to *p*-Aminobenzoic Acid, **84,** 145 (1943)

Liberti, A., and Sartori, G. Polarographic Investigation of Mercaptobenzothiazole, **97,** 20 (1950)

Lidbury, F. A. (D), **84,** 62, 95, 178, 276 (1943)

Lieb, S. B. (D), **88,** 72 (1945)

Lietzke, M. H., and Holt, M. L. Codeposition of Tungsten and Iron from an Aqueous Ammoniacal Citrate Bath, **94,** 252 (1948)

Liger, A. W. (D), **88,** 294, 295 (1945)

Lilliendahl, W. C. (D), **91,** 262, 277, 278, 283, 318, 322 (1947); **93,** 360, 361 (1948); **98,** 257 (1951)

Lilliendahl, W. C., *et al.* Production of Ductile Vanadium by Calcium Reduction of Vanadium Trioxide, **98,** 395 (1951)

Lilliendahl, W. C., *et al.* Quantitative Evaluation of Oxygen in Zirconium, **93,** 235 (1948)

Lilliendahl, W C., *et al.* Zirconium and Thorium Electrodes in Discharge Lamps, **91,** 299 (1947)

Lilliendahl, W. C., and Rentschler, H. C. Recent Developments on the Preparation of Zirconium, **91,** 285 (1947)

Lind, S. C. Uranium and Radium in the Postwar Period, **89,** 291 (1946)

Lind, S. C. (D), **85,** 116 (1944); **89,** 300 (1946)

Linden, David. Capacity as a Function of Temperature and Discharge Rate of Certain Military Types of Lead-Acid Batteries, **92,** 223 (1947)

Linder, J. A. Starting of Fluorescent Lamps, **87,** 379 (1945)

Linder, J A. (D), **88,** 222, 223 (1945)

Lindstrom, G. G. (D), **92,** 227 (1947)

Linford, H. B. (D), **88,** 241 (1945)

Linford, H. B , *et al.* Corrosion of Lead-Indium Diffusion Alloys, **84,** 65 (1943)

Linford, H. B., and Ford, M. J. Corrosion of Silver in a Water Saturated Chlorine Atmosphere, **93,** 16 (1948)

Linford, H. B., and Webb, R. E. Effect of Pressure on Current Efficiency of Copper Electrodeposition from Cyanide Solutions, **94,** 261 (1948)

Lingane, J. J. Some Analytical Applications of Controlled Potential Electrolysis, **92,** 505 (1947)

Lingane, J. J. (D), **92,** 464 (1947)

Linn, A. M. (D), **91,** 545 (1947)

Litton, F. B. Preparation and Some Properties of Hafnium Metal, **98,** 488 (1951)

Litton, F. B. Present Status of Titanium Metal, **97,** 66C (1950)

Livingstone, H., *et al.* Corrosion Resistance of Magnesium and Certain of Its Alloys under Various Accelerated Atmospheric Conditions, **90,** 475 (1946)

Lloyd, R. R. (D), **89,** 382 (1946); **94,** 383 (1948)

Lloyd, R. R., *et al.* Electrowinning of Chromium from Trivalent Salt Solutions, **89,** 443 (1946)

Lloyd, R. R., *et al.* Improvements in the Electrowinning of Chromium, **97,** 227 (1950)

Lloyd, R. R., *et al.* Pilot-Plant Production of Electrolytic Chromium, **94,** 122 (1948)

Lloyd, S. J. Freedom in Science, Ninth Joseph W. Richards Memorial Lecture, **89,** 9 (1946)

Lloyd, T. B., *et al.* Effect of Ionic Addition Agents on the Polarization of Electrodeposition of Copper, **94,** 341 (1948)

Lof, E. A. (D), **81,** 87 (1942)

Logan, K. H. Review of Corrosion Literature for 1945: Soil Corrosion, **89,** 54 (1946)

Long, J. R. (D), **96,** 381 (1949)

Longtin, B., *et al.* Theory of Stress Corrosion Cracking of Mild Steel in Nitrate Solutions, **87,** 209 (1945)

Loomis, C. C. Production of Metallic Calcium by Thermal Reduction, **89,** 207 (1946)

Loonam, A. C. (D), **89,** 513, 514 (1946); **91,** 385 (1947); **92,** 53, 65, 222 (1947); **93,** 350 (1948); **94,** 372, 373, 378, 381 (1948); **96,** 381 (1949); **97,** 471 (1950); **98,** 254, 512 (1951)

Loose, W. S. Nickel Plating Magnesium Alloys, **81,** 213 (1942)

Loose, W. S. (D), **89,** 103, 259, 275, 511 (1946); **90,** 482 (1946); **91,** 297, 571, 702 (1947)

Lo Presti, P. J. Corrosion Resistance of Silver-Plated Steel: Phosphating the Steel before Plating, **84,** 335 (1943)

Lo Presti, P. J. (D), **82,** 109, 110 (1942); **84,** 313 (1943); **88,** 303, 321 (1945)

Lorck, K. (D), **89,** 316 (1946)

Loria, E. A. (D), **91,** 186, 187 (1947)

Loria, E. A., *et al.* Specially Processed Silicon Carbide as a Deoxidizing Agent in the Reducing Slag of Basic Electric Steelmaking, **91,** 155 (1947)

Lowenheim, F. A. High-Efficiency Anode for Alkaline Tin-Plating: The Effect of Alloying Constituents on the Anodic Behavior of Tin in Alkaline Stannate Solutions, **96,** 214 (1949)

Lowenheim, F. A. Tin Plating from Potassium Stannate Baths, Part II., **84,** 195 (1943)

Lowenheim, F. A. (D), **84,** 255, 256 (1943); **86,** 414 (1944); **89,** 372 (1946); **90,** 54, 309 (1946)

Lowenheim, F. A., and Sternfels, M. M. Tin Plating from the Potassium Stannate Bath, **82,** 77 (1942)

Lowry, E. F. Long-Term Deterioration in Certain Phosphors Exposed to the Low Pressure Mercury Arc, **95,** 242 (1949)

Lowry, E. F. (D), **88,** 222, 223 (1945); **91,** 107, 305, 306 (1947)

Lucas, J. W., and Zergiebel, C. P. Phosphorous Furnace Reactions, **81,** 97 (1942)

Lui, C. K. (D), **88,** 223 (1945)

Lui, C. K., *et al.* Calcium Halophosphate Phosphors, **95,** 187 (1949)

Lui, C. K., *et al.* Ultraviolet Emitting Phosphor, **97,** 29 (1950)

Lukens, H. S. William Blum, Acheson Medalist of 1944, **86,** 6 (1944)

Lukens, H. S. (D), **84,** 63 (1943)

Lundstrom, E. G., and Young, C. B. F. Electrolytic Decomposition of Aqueous Ammonium Chloride Solutions, **81,** 175 (1942)

Lustman, Benjamin. Rate of Film Formation on Metals, **81,** 359 (1942)

Lustman, Benjamin. Study of Deposition Potentials and Microstructures of Electrodeposited Nickel-Zinc Alloys, **84,** 363 (1943)

Lustman, Benjamin. (D), **83,** 313 (1943)

Luyckx, André, and van Male de Ghorain, R. Spiraling in Fluorescent Lamps, **97,** 159 (1950)

Lynes, Wilson. Some Historical Developments Relating to Corrosion, **98,** 3C (1951)

Lyon, D. W., *et al.* Preparation of Hyper-Pure Silicon, **96,** 359 (1949)

Lyons, E. H., Jr. Electrogalvanizing of Strip Steel, **84,** 279 (1943)

Lyons, E. H., Jr. What is a "Clean" Surface?, **88,** 281 (1945)

Lyons, E. H., Jr. (D), **82,** 257 (1942); **84,** 301, 303 (1943); **88,** 324, 356, 369 (1945); **89,** 290 (1946); **90,** 78, 160 (1946)

Ma, C. C., and Fink, C. G. Pure Tungsten Direct from Ore, I. Electrolytic Tungsten from Fused Borax and Fused Phosphate Baths, **84,** 33 (1943)

Ma, C. C., and Fink, C. G. Pure Tungsten Direct from Ore, II. Study of Electrolytic Tungsten Crystal Growth in a Fused Electrolyte Bath, **84,** 53 (1943)

MacInnes, D. A. Pure Science Research, **94,** 4*P* (1948)

Mackay, J. S. (D), **91,** 654 (1947)

MacKenzie, J. T. (D), **85,** 220 (1944); **89,** 316 (1946); **91,** 165 (1947)

MacMullin, R. B. (D), **90,** 108, 109, 329 (1946); **95,** 351 (1949)

MacMullin, R. B., and Gardiner, W. C. Electrochemical and Allied Industries of the Niagara Frontier, **86,** 51 (1944)

Magly, J. W. (D), **98,** 516 (1951)

Maguire, W. T. (D), **84,** 247 (1943)

Mahla, E. M. (D), **89,** 163, 507 (1946)

Mahla, E. M., and Nielsen, N. A. Passivation of Stainless Steel, **89,** 167 (1946)

Mahla, E. M., and Nielsen, N. A. Study of Films Isolated from Passive Stainless Steels, **93,** 1 (1948)

MAIBAUER, A. E., and MYERS, C. S. Polyethylenes, **90,** 341 (1946)

MAIN, R. F. (D), **84,** 290 (1943)

MAKAI, E. High Valent Manganese as Activator of Luminescence, **95,** 107 (1949)

MALLETT, M. W., *et al.* Uranium Sesquicarbide, **98,** 505 (1951)

MANLEY, T. C. Electric Characteristics of the Ozonator Discharge, **84,** 83 (1943)

MANTELL, C. L. Commercial Production of Electrolytic Manganese, **94,** 232 (1948)

MANTELL, C. L. Teaching Electrochemical Engineering. Round Table Discussion, **86,** 32 (1944)

MANTELL, C. L. (D), **81,** 64, 86, 116 (1942); **85,** 118 (1944); **89,** 382, 477 (1946); **92,** 64 (1947)

MARBLE, J. P. (D), **92,** 76 (1947)

MARCOVITCH, I. W. (D), **84,** 301, 341 (1943); **88,** 303, 319, 321, 323 (1945)

MARDEN, J. W. (D), **85,** 94, 95 (1944); **88,** 204, 205, 218 (1945); **89,** 278, 275 (1946); **93,** 358, 367 (1948)

MARDEN, J. W., and GRIMM, H. E. Colin Garfield Fink, **92,** 3 (1947)

MARDEN, J. W., and WROUGHTON, D. M. Effect of Working on the Physical Properties of Molybdenum, **89,** 217 (1946)

MARGOLIS, J. M., and FROELICH, H. C. Calcium Phosphate Phosphor Activated with Cerium and Manganese, **98,** 400 (1951)

MARIER, PAUL, *et al.* Effect of Oxygen on Inhibiton of Corrosion by Nitrite, **96,** 254 (1949)

MARLIES, C. A. (D), **88,** 387, 390 (1945)

MARSHALL, D. I., and HACKERMAN, NORMAN. Corrosion Studies on Electrolytic Chromium, **89,** 195 (1946)

MARSHALL, D. I., and HACKERMAN, NORMAN. Passivity of Chromium, **93,** 49 (1948)

MARSHALL, M. J., AND MCMAHON, H. O. Molecular Complexity of Some Gases in the High Frequency Discharge, **84,** 109 (1943)

MARTIN, A. E., *et al.* Recording Spectroradiometers for Luminescent Materials, **97,** 41 (1950)

MASON, D. E., and GARLICK, G. F. J. Electron Traps and Infrared Stimulation of Phosphors, **96,** 90 (1949)

MASON, J. F., JR. Review of Corrosion Literature, 1942, **83,** 17 (1943)

MASON, R. B., and TOSTERUD, MARTIN. Aluminum Coulometer, **90,** 221 (1946)

MATHERS, F. C. (D), **81,** 95, 229 (1942); **82,** 225, 226, 305 (1942); **84,** 178, 193 (1943); **85,** 116, 221 (1944); **86,** 381, 391, 392 (1944); **89,** 258, 275, 413, 414, 429 (1946); **91,** 219, 384, 385 (1947); **94,** 377, 378 (1948); **95,** 360 (1949); **96,** 381, 385 (1949)

MATHERS, F. C., and FELGER, M. M. New Addition Agent for the Electrolytic Refining of Tin and Lead, **90,** 81 (1946)

MATHERS, F. C., and JOHNSON, P. H. New Work on Tin Plating from Ammonium Stannous Oxalate, **81,** 267 (1942)

MATHERS, F. C., and SUTTLE, J. F. Electrodeposition of Lead from the Ethylbenzenesulfonate Bath, **93,** 47 (1948)

MATLOCK, R. C. (D), **91,** 336 (1947)

MAY, J. A., and KOBE, K. A. Electrolytic Reduction of Salicylic and Acetylsalicylic Acids to the Corresponding Aldehydes, **97,** 183 (1950)

MAY, T. P. (D), **94,** 405 (1948)

MAY, T. P., and BURWELL, R. L., JR. Measurement of Permeability Characteristics of Anodic Films on Aluminum, **94,** 195 (1948)

MAYNE, J. E. O. (D), **98,** 513 (1951)

MAZIA, J. (D), **84,** 318 (1943)

MCCARTHY, F. S., and RICE, G. A. Liquid Chlorine Level Measurement, **97,** 249 (1950)

MCCAUGHEY, W. J. (D), **88,** 183 (1945)

MCCAULEY, C. E., and FRIEDMAN, MAURICE. Ruben Cell—A New Alkaline Primary Dry Cell Battery: Its Design and Manufacture, Electrochemical Principles, Performance Characteristics, and Applications, **92,** 195 (1947)

MCCOY, H. R. (D), **91,** 189 (1947)

MCDONALD, H. J. (D), **89,** 236, 355, 356, 371, 372, 512 (1946); **91,** 603, 691 (1947)

MCDONALD, H. J., and DRAVNIEKS, ANDREW. Electropotentials in Growing Halide and Oxide Layers on Metals, **93,** 177 (1948)

MCDONALD, H. J., and DRAVNIEKS, ANDREW. Zone of Metal Phase Consumption in Gas-Metal Reactions, **91,** 139 (1948)

MCDONALD, H. J., *et al.* Theory of Stress Corrosion Cracking of Mild Steel in Nitrate Solutions, **87,** 209 (1945)

MCDONALD, H. J., and FRANTIK, R. O. Thermodynamic Study of the Tin-Antimony System, **88,** 243 (1945)

MCDONALD, H. J., and FRANTIK, R. O. Thermodynamic Study of the Tin-Silver System, **88,** 253 (1945)

MCDONALD, H. J., and SCHASCHL, EDWARD. Low Temperature Liquid Sulfur Dioxide Cell, **94,** 299 (1948)

MCDONALD, H. J., and ZITEK, C. J. B. Transference Number of Nickel in a Nickel Sulfate Solution, **89,** 433 (1946)

MCKAY, R. J. (D), **83,** 333 (1943)

MCKEAG, A. H. (D), **95,** 362 (1949)

MCKEAG, A. H., *et al.* Alkaline Earth Halophosphates and Related Phosphors, **96,** 1 (1949)

MCKEAG, A. H., and JENKINS, H. G. Some Rare Earth Activated Phosphors, **97,** 415 (1950)

MCKEAG, A. H., and RANBY, P. W. New Zinc Sulfide Phosphors Activated by Phosphorus, **96,** 85 (1949)

MCKECHNIE, R. K., and SEYBOLT, A. U. Preparation of Ductile Vanadium by Calcium Reduction, **97,** 311 (1950)

MCKENZIE, J. T. (D), **91,** 653 (1947)

MCMAHON, H. O., and MARSHALL, M. J. Molecular Complexity of Some Gases in the High Frequency Discharge, **84,** 109 (1943)

MCMULLEN, E. W. (D), **90,** 339 (1946)

MCMULLEN, E. W., *et al.* Technology of Germanium, **89,** 277 (1946)

MCMURDIE, H. F. Microscopic and Diffraction Studies on Dry Cells and their Raw Materials, **86,** 313 (1944)

MCMURDIE, H. F. (D), **90,** 403 (1946); **92,** 155, 156 (1947)

MCMURDIE, H. F., *et al.* Study of Equilibrium Reactions in the Leclanché Dry Cell, **90,** 509 (1946)

MCMURTRIE, R. L., *et al.* Discharge Characteristics of the Perchloric Acid Cell, **91,** 73 (1947)

MCNULTY, R. E. (D), **82,** 387 (1942)

MCNULTY, R. E., and BARBIAN, H. A. Chromic Acid Electrolyte for a Magnesium Primary Cell, **91,** 387 (1947)

MCNULTY, R. E., and HANAWALT, J. D. Some Corrosion Characteristics of High Purity Magnesium Alloys, **81,** 423 (1942)

MCQUEER, B. H. (D), **85,** 162 (1944)

MEARS, R. B. Unified Mechanism of Passivity and Inhibition, **95,** 1 (1949)

MEARS, R. B. (D), **81,** 319, 407, 509, 510, 520, 570 (1942); **84,** 81, 225 (1943); **87,** 232 (1945)

MEARS, R. B., and BROWN, R. H. Cathodic Protection, **81,** 455 (1942)

MEARS, R. B., and BROWN, R. H. Unified Mechanism of Passivity and Inhibition. Part II, **97,** 75 (1950)

MEARS, R. B., and ELDREDGE, G. G. Use of Inhibitors for Aluminum Chemical Equipment, **83,** 403 (1943)

MECHERLY, P. A., *et al.* Application of the Dropping Mercury Electrode to Diazo Chemistry, **97,** 166 (1950)

MEISTER, GEORGE. (D), **88,** 205 (1945); **95,** 362 (1949)

MELAMED, N. T. Zinc Sulfide Infrared Quenching Phosphors, **97,** 33 (1950)

MERLUB-SOBEL, M. (D), **84,** 351 (1943); **86,** 125, 126, 140 (1944); **92,** 52 (1947)

MERRILL, C. C., *et al.* Improvements in the Electrowinning of Chromium, **97,** 227 (1950)

MERRILL, J. B. (D), **93,** 348 (1948)

MERRITT, C. G. Electric Steel in the United States at Forty-One, **91,** 147 (1947)

Mesle, F. C. (D), **82,** 108, 109, 110 (1942); **84,** 344 (1943)

Meyer, Walter. Bright Plating, Round Table Discussion, **86,** 33 (1944)

Meyer, W. (D), **88,** 291, 320, 321 (1945)

Meyer, W. R. (D), **86,** 440 (1944); **89,** 484 (1946); **94,** 374, 401, 402 (1948)

Milek, J. T. (D), **98,** 511, 517 (1951)

Miley, H. A. Theory of Oxidation and Tarnishing of Metals, I. Linear, Parabolic and Logarithmic Laws, **81,** 391 (1942)

Miley, H. A. (D), **81,** 318, 319 (1942)

Miley, H. A., and Dighton, A. L. Parabolic and Logarithmic Oxidation of Copper, **81,** 321 (1942)

Miley, H. A., and Hamilton, O. H. Theory of Oxidation and Tarnishing of Metals, II. Growth Laws under More General Conditions, **81,** 413 (1942)

Miller, John. (D), **90,** 340, 360 (1946)

Miller, J. G. (D), **90,** 275 (1946)

Miller, J. G., and Geary, P. A. Solvent Effect on the Electric Moments of Some Amines, **97,** 54 (1950)

Milligan, A. G. (D), **98,** 522 (1951)

Moeller, Therald, and Hopkins, B. S. Electrochemistry of Indium, **93,** 84 (1948)

Mohler, J. B. (D), **98,** 516 (1951)

Mohler, J. B., and Schaefer, R. A. Electrodeposition on the Inside of Eccentric Cylinders, **86,** 431 (1944)

Mohler, J. B., and Schaefer, R. A. Electrolytic Analysis of Strike Solutions, **88,** 421 (1945)

Molless, A. M., *et al.* Rate of Dissolution of Silver in Aqueous Ceric Sulfate Solutions, **98,** 31 (1951)

Monaweck, J. H. Control of Ammonia in Electrodeposition of Brass, **82,** 59 (1942)

Montillon, G. H., and Gernes, D. C. Single Metal, Binary and Ternary Alloy Deposition from Thiosulfate Solutions, II. Binary Alloy Deposition of Copper-Nickel, Copper-Cadmium and Copper-Zinc Alloys from Thiosulfate Solutions, **81,** 231 (1942)

Moore, R. E., (D), **96,** 386 (1949)

Moore, W. C. Edward Goodrich Acheson Metal Award, **90,** 5 (1946)

Moore, W. C. Future of The Electrochemical Society, Presidential Address, **91,** 10 (1947)

Moore, W. C. (D), **81,** 173, 271 (1942); **82,** 100, 256, 305, 372 (1942); **83,** 142, 159 (1943); **84,** 143 (1943); **85,** 151 (1944); **87,** 518 (1945); **88,** 163 (1945); **89,** 429 (1946); **90,** 309, 432 (1946); **92,** 342 (1947)

Morehouse, C. K., *et al.* Low Temperature Dry Cells, **90,** 419 (1946)

Morral, F. R. (D), **85,** 325 (1944); **87,** 206 (1945); **88,** 290, 291, 322, 355 (1945)

Morse, L. M. (D), **84,** 224, 289 (1943)

Morse, R. O. (D), **87,** 427 (1945)

Moulton, R. W., *et al.* Electrolytic Ozone, **93,** 211 (1948)

Mrgudich, J. N. X-Ray Studies of Storage Battery Pastes, **81,** 165 (1942)

Mrgudich, J. N. (D), **81,** 319 (1942); **90,** 528 (1946); **92,** 132, 156, 303, 304 (1947)

Mrgudich, J. N., and Clock, R. C. X-Ray and Electron Microscope Evaluation of Carbon Blacks, **86,** 351 (1944)

Mudge, W. A. (D), **86,** 271 (1944)

Muir, A. D. (D), **97,** 463, 466 (1950)

Mullen, J. B., and Howard, P. L. Characteristics of the Silver Chloride-Magnesium Water Activated Battery, **90,** 529 (1946)

Müller, O. H. Oxidation-Reduction Potentials Measured with the Dropping Mercury Electrode, Part V. Anomalous Polarographic Waves in Dilute Solutions of Certain Dyes, **87,** 441 (1945)

Mullin, E. (D), **84,** 301 (1943)

Mullin, U. A. (D), **82,** 52, 110, 111 (1942)

Munger, H. P. (D), **82,** 99 (1942); **83,** 74 (1943); **84,** 193, 256 (1943)

Murphy, E. J. Gases Evolved by Thermal Decomposition of Paper, **83,** 161 (1943)

Murphy, E. J. (D), **83,** 184 (1943)

Murphy, G. W. Separation of Simple Electrolytes in Solution by an Electro-Gravitational Method, **97,** 405 (1950)

Murphy, N. F. (D), **96,** 377 (1949); **98,** 255 (1951)

Murray, R. L. (D), **86,** 120, 155 (1944)

Murray, R. L., and Kircher, M. S. Current Efficiency Studies of the Hooker Type S Chlorine Cell, **86,** 83 (1944)

Murray, W. S. (D), **84,** 70 (1943)

Musgrave, J. R. Developments of Germanium and Gallium during 1949, **97,** 8*C* (1950)

Musgrave, J. R. (D), **81,** 173 (1942); **89,** 119, 289 (1946)

Musgrave, J. R., and Harner, H. R. New Method for Particle Size Determination in the Sub-Sieve Range, **92,** 579 (1947)

Myers, C. S., and Maibauer, A. E. Polyethylenes, **90,** 341 (1946)

Nagy, Rudolph. (D), **96,** 379 (1949)

Nagy, Rudolph, *et al.* Calcium Halophosphate Phosphors, **95,** 187 (1949)

Nagy, Rudolph., *et al.* Ultraviolet Emitting Phosphor, **97,** 29 (1950)

Nakayama, Tadayuki, *et al.* Electron Diffraction Studies on the Nature of the Corrosion Resistance of Stainless Steel: On the Ferrous Nickel Chromate Formed on the Surface of Stainless Steel, **95,** 21 (1949)

Nanney, B. G. (D), **86,** 139, 140 (1944)

Narcus, Harold. Electrodeposition of Metals on Plastics, **88,** 371 (1945)

Narcus, Harold (D), **83,** 333 (1945)

Nelson, J. A., *et al.* Refractory Bodies Composed of Boron and Titanium Carbides Bonded with Metals, **98,** 465 (1951)

Neman, Sol. Der Internationale Scientist, **97,** 68*C*, 122*C* (1950); **98,** 93*C* (1951)

Netherton, L. E., and Holt, M. L. Electrodeposition of Rhenium from Aqueous Solutions, **95,** 324 (1949)

Netherton, L. E., and Holt, M. L. Electrodeposition of Rhenium-Nickel Alloys, **98,** 106 (1951)

Neumark, H. R. Electrolytic Fluorine Production in Germany, **91,** 367 (1947)

Neumark, H. R. (D), **92,** 389, 426 (1947)

Newhall, H. S. Some Thoughts on Experimental Electric Arc Furnace Smelting, **88,** 163 (1945)

Nicholson, J. H., and Kwasney, E. J. Scaling at High Temperatures in Sulfur Dioxide, Oxygen and Nitrogen-Containing Atmospheres, **91,** 681 (1947)

Nielsen, D. M. Automatic Control of Electroplating Processes (Abstract), **83,** 75 (1943)

Nielsen, M. L., and Holt, M. L. Cathode Films in Tungstate-Containing Plating Baths, **82,** 217 (1942)

Nielsen, M. L., and Holt, M. L. Electrodeposition of Nickel-Tungsten Alloys from an Acid Plating Bath, **82,** 193 (1942)

Nielsen, N. A., and Mahla, E. M. Passivation of Stainless Steel, **89,** 167 (1946)

Nielsen, N. A., and Mahla, E. M. Study of Films Isolated from Passive Stainless Steels, **93,** 1 (1948)

Norwood, S. M. Review of Corrosion Literature for 1944, **87,** 10 (1945)

Norwood, S. M. Submits Review of Corrosion Literature for 1941, **81,** 13 (1942)

Nowicki, D. H., *et al.* The Vapor-Phase Deposition of Refractory Materials, I. General Conditions and Apparatus, **96,** 318 (1949)

Odell, Francis, and Duwez, Pol. Phase Relationships in the Binary Systems of Nitrides and Carbides of Zirconium, Columbium, Titanium, and Vanadium, **97,** 299 (1950)

Odell, Francis, *et al.* The Zirconia-Yttria System, **98,** 356 (1951)

Ogburn, Fielding, and Brenner, Abner. Experiments in

Chromium Electrodeposition with Radioactive Chromium, **96,** 347 (1949)
OLDACH, C. S., and LANDAU, R. Corrosion of Binary Alloys, **81,** 521 (1942)
OLMSTED, L. (D), **85,** 161, 162 (1944); **86,** 336 (1944)
OLSON, C. M., *et al.* Preparation of Hyper-Pure Silicon, **96,** 359 (1949)
OLTROGGE, A. R., and STANSEL, N. R. Electric Apparatus for Three-Phase Arc-Furnaces, **91,** 191 (1947)
OPLINGER, F. F. (D), **94,** 393, 394, 395 (1948)
OSBORN, H. B., JR. Practical Aspects of the Selection of Frequency and Time Cycles for the Processing of Metallic Parts by Induction Heating (Abstract), **86,** 261 (1944)
OSBORN, H. B., JR. (D), **86,** 257, 271 (1944)
OSBORN, W. H., and TUWINER, S. B. Electrodeposition of Copper Powder, **85,** 107 (1944)
OSBORNE, J. L. (D), **84,** 247 (1943)
OSTRANDER, E. H., *et al.* Effect of Digesting Autoclaving and Neutralizing Some Battery Manganese Dioxides, **86,** 327 (1944)
OTIS, L. B. (D), **86,** 138, 139 (1944)
OTTING, W. J., *et al.* Lead Dioxide Cell Containing Various Electrolytes, **90,** 405 (1946)
OTTO, EARL. (D), **86,** 325 (1944); **90,** 439, 440 (1946); **94,** 385 (1948)
OTTO, EARL, *et al.* Effect of Digesting, Autoclaving and Neutralizing some Battery Manganese Dioxides, **86,** 327 (1944)
OTTO, EARL, *et al.* Low Temperature Dry Cells, **90,** 419 (1946)
OTTO, J. B., JR., and WATT, G. W. Potentiometric Titrations Involving Solutions of Metals in Liquid Ammonia, **98,** 1 (1951)
OVERBEEK, J. TH. G., *et al.* Bismuth as Activator in Fluorescent Solids, **96,** 132 (1949)

PALILLA, FRANK, *et al.* Electrolytic Determination of Cadmium in Zinc Sulfide-Cadmium Sulfide Phosphors, **98,** 307 (1951)
PALMER, R. M. (D), **83,** 359 (1943)
PALMROSE, G. V. (D), **87,** 569, 585 (1945)
PAOLUCCI, A. A., and PETROCELLI, J. V. Overvoltage at Oxidation-Reduction Electrodes, **98,** 291 (1951)
PARKER, E. A. (D), **88,** 304 (1943)
PARKER, E. A., and SWANN, SHERLOCK, JR. Electrolytic Reduction of Hexoses, **92,** 343 (1947)
PARKER, I. M. (D), **93,** 344 (1948)
PARRY, R. W., *et al.* Coordination Compounds in the Electrodeposition of Chromium, **92,** 507 (1947)
PARSONS, S. L., *et al.* Recording Spectroradiometers for Luminescent Materials, **97,** 41 (1950)
PARTRIDGE, E. P. Review of Corrosion Literature for 1945: Corrosion and Embrittlement by Boiler Waters, **89,** 56 (1946)
PASCHKIS, VICTOR. Thermal Engineer's View of an Arc Furnace: Survey of Some Heat Problems in Arc Furnaces, **88,** 151 (1945)
PASCHKIS, VICTOR. (D), **88,** 133, 170, 183 (1945)
PASIUT, L. A., and LEININGER, ROBERT. Effect of Electrolytically Released Halogens on an Absolute Methyl Alcohol Solution of Cinnamic Acid, **88,** 73 (1945)
PAUL, G. T., *et al.* Zinc Yellow in the Inhibition of Corrosion Fatigue of Steel in Sodium Chloride Solution, **83,** 377 (1943)
PAULING, L. (D), **98,** 518 (1951)
PAWEL, G. W. (D), **81,** 64, 87, 88 (1942)
PAYNE, V. F. Development of Substitutes for Shawinigan Acetylene Black in Dry Batteries, **86,** 345 (1944)
PEAKE, J. S. (D), **81,** 102 (1942)
PEARLSON, W. H., *et al.* Electrochemical Process for the Production of Fluorocarbons, IV. From Oxygen Containing Compounds, **95,** 59 (1949)
PEARSON, E. P., and LEE, E. K. Electric Conductivity of Molten Chloride Salts, **88,** 171 (1945)
PEARSON, J. M. "Null" Methods Applied to Corrosion Measurements, **81,** 485 (1942)
PEARSON, J. M. (D), **81,** 164 (1942); **83,** 251 (1943); **85,** 276 (1944); **98,** 252 (1951)
PEARSON, RALPH, and EVANS, W. V. Electrolysis of Grignard Reagents: Short-Lived Free Radicals in Ethyl Ether, **82,** 297 (1942)
PEARSON, RALPH, and EVANS, W. V. Electrolysis of the Nitroparaffins, **84,** 173 (1943)
PELLISSIER, G. E., and WICKER, E. E. (D), **97,** 472 (1950)
PERLEY, G. A. Hydrogen Gas Electrode Measurements, **92,** 485 (1947)
PERLEY, G. A. Industrial Salt-Bridge Junction Tube, **92,** 497 (1947)
PERLEY, G. A., and ECKFELDT, E. L. Measurement of and Effect of Temperature on Electrical Resistance of Glass Electrodes, **98,** 37 (1951)
PERNERT, J. C. (D), **81,** 183 (1942)
PERSSON, J. A., and ERASMUS, H. deW. Preparation and Properties of Silicon Monoxide, **95,** 316 (1949)
PETERS, F. P. (D), **83,** 373 (1943); **86,** 257, 293 (1944)
PETROCELLI, J. V. Electrochemical Behavior of Aluminum, I. In Solutions of Cerium Sulfate in Sulfuric Acid, **97,** 10 (1950)
PETROCELLI, J. V. Electrochemical Behavior of Aluminum, II. In Solutions of Iron Sulfate, **98,** 183 (1951)
PETROCELLI, J. V. Kinetics of Oxidation-Reduction Electrode Reactions, **98,** 187 (1951)
PETROCELLI, J. V. (D), **85,** 253, 318 (1944); **93,** 362 (1948); **98,** 255 (1951)
PETROCELLI, J. V., and PAOLUCCI, A. A. Overvoltage at Oxidation-Reduction Electrodes, **98,** 291 (1951)
PETROCELLI, J. V., AND PHILLIPS, ARTHUR. Reactivity of Aluminum, Zinc, and a Zinc Base Die Casting Alloy with Various Electrolytes, **85,** 257 (1944)
PHILLIPS, ARTHUR, and PETROCELLI, J. V. Reactivity of Aluminum, Zinc, and a Zinc Base Die Casting Alloy with Various Electrolytes, **85,** 257 (1944)
PHILLIPS, N. W. F. (D), **88,** 133, 182, 183 (1945); **89,** 510 (1946); **90,** 128 (1946)
PHILLIPS, W. E. (D), **90,** 123 (1946)
PHILLIPS, W. J. (D), **82,** 111 (1942)
PHIPPS, G. S., and BOUTON, G. M. Rapid Determination of the Calcium Content of Lead-Calcium Alloys by Titrating in the Molten State with Metallic Antimony, **92,** 305 (1947)
PIDGEON, L. M. (D), **81,** 86, 87, 88 (1942)
PIERCE, R. T., *et al.* Characteristics of the Silver Oxide-Zinc-Alkali Primary Cell, **90,** 467 (1946)
PIERCE, R. T., JR., *et al.* Discharge Characteristics of the Perchloric Acid Cell, **91,** 73 (1947)
PINGEL, V. J., and SMITH, L. W. Micro Solution-Potential Measuring Technique, **98,** 48 (1951)
PIONTELLI, ROBERTO. Lead Refining with Sulfamate Baths, **94,** 106 (1948)
PIPER, J. D. (D), **84,** 107 (1943)
PIRANI, M. Conditions Favoring the Start of an Arc Discharge between Cold Activated Electrodes at 50 Cycles per Second (Abstract), **83,** 233 (1943)
PIRANI, M. Early Days of Nickel-Tungsten Powder Metallurgy, **85,** 163 (1944)
PITTMAN, R. G. (D), **83,** 375 (1943)
PODGURSKI, H. H. (D), **83,** 316 (1943)
POPE, ROBERT. Review of Corrosion Literature for 1945: Cathodic Protection, **89,** 44 (1946)
POURBAIX, MARCEL, *et al.* Potential-*p*H Diagram of Lead and its Applications to the Study of Lead Corrosion and to the Lead Storage Battery, **98,** 57 (1951)
POURBAIX, MARCEL, *et al.* Potential-*p*H Diagram of Silver—Construction of the Diagram—Its Applications to the

Study of the Properties of the Metal, its Compounds, and its Corrosion, **98,** 65 (1951)

POURBAIX, MARCEL, *et al.* Potential-*p*H Diagram of Zinc and Its Applications to the Study of Zinc Corrosion, **98,** 101 (1951)

POWELL, C. F., *et al.* Deposition of Tantalum and Columbium from Their Volatilized Halides, **93,** 258 (1948)

POWELL, C. F., *et al.* The Formation of Molybdenum Disilicide Coatings on Molybdenum, **98,** 21 (1951)

POWELL, C. F., *et al.* The Vapor-Phase Deposition of Refractory Materials, I. General Conditions and Apparatus, **96,** 318 (1949)

POWER, W. H., *et al.* Discharge Characteristics of the Perchloric Acid Cell, **91,** 73 (1947)

PRATER, J. D., *et al.* Electrolytic Refining of Antimony Bullion, **95,** 145 (1949)

PRATER, J. D., and SCHLAIN, DAVID. Electrodeposition of Gamma Manganese, **94,** 58 (1948)

PRATT, W. E. Effects of Oxygen Exhaustion from Corrosive Solutions on High Nickel-Chromium-Molybdenum Alloy Steels, **86,** 203 (1944)

PRENER, J. S. Arsenic-Activated Zinc Sulfide Phosphor, **98,** 406 (1951)

PRING, J. N. (D), **88,** 62 (1945)

PRINGSHEIM, P. (D), **93,** 349, 351 (1948)

PRYOR, M. J. (D), **97,** 464 (1950)

PRYOR, M. J., and COHEN, MORRIS. Mechanism of the Inhibition of the Corrosion of Iron by Solutions of Sodium Orthophosphate, **98,** 263 (1951)

PRYOR, M. J., and COHEN, MORRIS. (D), **98,** 513 (1951)

PUMPLIN, G. G. (D), **86,** 185 (1944)

PURCELL, T. E., and WHIRL, S. F. Protection against Caustic Embrittlement by Coordinated Phosphate-*p*H Control, **83,** 343 (1943)

PUTNAM, G. L. (D), **98,** 255 (1951)

PUTNAM, G. L., *et al.* Electrolytic Ozone, **93,** 211 (1948)

PUTNAM, G. L., *et al.* Production of Ozone with Refrigerated Anodes, **98,** 134 (1951)

PYE, D. J. Control of Bleach Manufacture by Oxidation Potential, **97,** 245 (1950)

PYKE, ROWENA, and COHEN, MORRIS. Rate of Breakdown and Mechanism of Nitrite Inhibition of Steel Corrosion, **93,** 63 (1948)

PYKE, ROWENA, *et al.* Effect of Oxygen on Inhibition of Corrosion by Nitrite, **96,** 254 (1949)

RAHN, H. W. (D), **86,** 105, 106, 139 (1944)

RALSTON, O. C. (D), **81,** 164 (1942); **93,** 350, 358 (1948); **91,** 367 (1948)

RAMSAY, R. E. (D), **94,** 385 (1948)

RANBY, P. W. Silver as an Activator of Halophosphate Phosphors, **98,** 299 (1951)

RANBY, P. W., *et al.* Alkaline Earth Halophosphates and Related Phosphors, **96,** 1 (1949)

RANBY, P. W., and HENDERSON, S. T. Barium Titanium Phosphate: A New Phosphor, **98,** 479 (1951)

RANBY, P. W., and MCKEAG, A. H. New Zinc Sulfide Phosphors Activated by Phosphorus, **96,** 85 (1949)

RASMUSSEN, L. M. (D), **94,** 392 (1948)

RAVE, W. J. (D), **86,** 155, 156 (1944)

RAVENSCROFT, P. H., *et al.* Electrolytic Reduction of *p*-Nitrobenzoic Acid to *p*-Aminobenzoic Acid, **84,** 145 (1943)

RAVITZ, S. F., and CARTWRIGHT, B. Electrolysis of Manganese into a Metal Cathode from Suspensions of Manganese Oxide and Carbon in Molten Manganous Chloride, **89,** 373 (1946)

RAVITZ, S. F., *et al.* Electrolytic Refining of Antimony Bullion, **95,** 145 (1949)

RAWLES, W. T., *et al.* Electrowinning of Chromium from Trivalent Salt Solutions, **89,** 443 (1946)

RAYMOND, W. A. (D), **98,** 258, 515 (1951)

RAYNOR, W. M. (D), **88,** 205 (1945)

READ, H. J. (D), **82,** 53, 66, 67, 68, 69, 95, 109, 151 (1942); **84,** 171 (1943); **89,** 259 (1946); **90,** 41, 233 (1946)

REDD, J. B., and HAWKINS, J. E. Reactions of β-Pinene, III. Electrolytic Oxidation, **97,** 178 (1950)

REHN, I. M. (D), **91,** 336 (1947)

REINER, MIRIAM, and STERN, K. G. Boundary Anomalies and Artifacts in Electrophoresis, **97,** 213 (1950)

REMICK, A. E. (D), **97,** 474 (1950)

REMICK, A. E., and SHAW, MANUEL. Studies on Alternating Current Electrolysis, I. The Nature of Polarization Capacity and Polarization Resistance, **97,** 324 (1950)

REMICK, A. E., and SILVERMAN, JACOB. Studies on Alternating Current Electrolysis, II. Oscillographic Studies, **97,** 335 (1950)

RENTSCHLER, H. C. John Wesley Marden—Honorary Member, **91,** 18 (1947)

RENTSCHLER, H. C. (D), **88,** 204, 205, 212, 225 (1945)

RENTSCHLER, H. C., *et al.* Zirconium and Thorium Electrodes in Discharge Lamps, **91,** 299 (1947)

RENTSCHLER, H. C., and HENRY, D. E. Lowering of the Photoelectric Work Function of Zirconium, Titanium, Thorium and Similar Metals by Dissolved Gases, **87,** 289 (1945)

RENTSCHLER, H. C., and LILLIENDAHL, W. C. Recent Developments on the Preparation of Zirconium, **91,** 285 (1947)

RHEA, T. R., and CONNELL, B. R. Rectification and Power Supply for the Electrolytic Industry, **90,** 175 (1946)

RHOADS, A. E. The Rocking Furnace, A Silver Anniversary: Part II. History of the Rocking Furnace—1918 to 1943, **83,** 211 (1943)

RICE, A. P. Differential Thermal Analysis Studies in Some Silicate Systems, **96,** 114 (1949)

RICE, G. A., and MCCARTHY, F. S. Liquid Chlorine Level Measurement, **97,** 249 (1950)

RICKS, H. E. (D), **89,** 413 (1946)

RIDDELL, GRACE, *et al.* Chromated Protein Films for the Protection of Metals, **93,** 55 (1948)

RIDGWAY, R. R. Crystal Gazing with War-Time Illumination, **81,** 51 (1942)

RIDGWAY, R. R. (D), **81,** 87 (1942); **84,** 62 (1943)

RIMBACH, RICHARD, and CONOLLY, J. H. Continuous Plating of Fine Steel Wire with Nickel, **84,** 293 (1943)

RITCHIE, E. J. Addition Agents for Negative Plates of Lead-Acid Storage Batteries, I. Introductory, **92,** 229 (1947)

RITZENTHALER, P. J. (D), **84,** 316, 334 (1943); **85,** 221 (1944)

ROACH, J. D. Effect of Chromium on the Oxidation Resistance of Titanium Carbide, **98,** 160 (1951)

ROALD, BERNT, and BECK, WALTER. Dissolution of Magnesium in Hydrochloric Acid, **93,** 277 (1951)

ROALD, BERNT, and STREICHER, M. A. Corrosion Rate and Etch Structures of Aluminum; Effect of Heat Treatment and Impurities, **97,** 283 (1950)

ROBERSON, A. H., *et al.* Heat Resistance of Zirconium in Several Mediums, **97,** 316 (1950)

ROBERSON, A. H., and HAYES, E. T. Some Effects of Heating Zirconium in Air, Oxygen, and Nitrogen, **96,** 142 (1949)

ROBERTO, S. N., *et al.* Recording Spectroradiometers for Luminescent Materials, **97,** 41 (1950)

ROBERTS, E. R., and ZENTLER GORDON, H. E. Routine Control of Brass Plating Processes: Polarographic, Electrochemical, and Chemical Analysis of Plating Solutions and Deposits, **90,** 27 (1946)

ROBERTS, W. B. Counterelectrodes for Selenium Rectifiers: A Review of the Literature, **97,** 181*C* (1950)

ROBERTSON, R. H., *et al.* Heat Resistance of Zirconium in Several Mediums, **97,** 316 (1950)

ROBERTSON, W. D. Molybdate and Tungstate as Corrosion Inhibitors and the Mechanism of Inhibition, **98,** 94 (1951)

ROBERTSON, W. D., and UHLIG, H. H. Chemical Properties of the Intermetallic Compounds Mg_2Sn and Mg_2Pb, **96,** 27 (1949)

ROBINSON, H. A. Automatic Potentiometric Titrations, **92,** 445 (1947)

Robinson, H. A. Magnesium as a Galvanic Anode: Some Factors Affecting Its Performance, **90,** 485 (1946)
Robinson, H. A. (D), **89,** 164 (1946)
Robinson, P. (D), **83,** 173, 184 (1943)
Robinson, P., and Burnham, J. Aluminum Electrolytic Condensers, **83,** 125 (1943)
Rochow, E. G. Introduction to Silicone Chemistry, **90,** 303 (1946)
Roehl, E. J. (D), **84,** 301, 302 (1943); **86,** 412 (1944)
Roehl, E. J., and Wesley, W. A. Cathode Potential, Efficiency and Throwing Power of Nickel Plating Solutions, **86,** 419 (1944)
Roehl, E. J., and Wesley, W. A. Electrodeposition of Hard Nickel, **82,** 37 (1942)
Rogers, A. N. Use of Zirconium in the Vacuum Tube, **88,** 207 (1945)
Rogers, B. A., *et al.* Production of Fused Silica, **92,** 115 (1947)
Rogers, D. G., and Burr, A. A. Electrodeposition of Chromium-Tungsten Alloy Plates, **97,** 67 (1950)
Rogers, D. G., and Burr, A. A. Theory of Rate Processes as a Means of Studying Plating Reactions, **97,** 92 (1950)
Rogers, L. B., and Byrne, J. T. Critical Interpretation of Electrodeposition Studies Involving Traces of Elements, **98,** 457 (1951)
Rogers, L. B., *et al.* Electrodeposition Behavior of Traces of Silver, **95,** 33 (1949)
Rogers, L. B., *et al.* Electrodeposition Behavior of Traces of Silver, II. Effects of Electrode History and the Presence of Other Ions, **98,** 447 (1951)
Rogers, L. B., *et al.* Electrodeposition Behavior of Traces of Silver, III. Transition Region Between "Trace" and "Macro" Behavior, **98,** 452 (1951)
Rogers, L. B., and Griess, J. C., Jr. Electroseparation of Traces of Silver from Palladium, **95,** 129 (1949)
Rogers, L. B., and Stehney, A. F. Electrodeposition Behavior of a Simple Ion, **95,** 25 (1949)
Rogers, R. R. (D), **98,** 514 (1951)
Rogers, R. R., and Dingley, W. Effect of Small Lead and Silver Additions on the Corrosion Resistance of Castings of Magnesium and Certain of its Alloys at Elevated Temperature and High Humidity, **91,** 693 (1947)
Rogers, R. R., *et al.* Corrosion Resistance of Magnesium and Certain of its Alloys under Various Accelerated Atmospheric Conditions, **90,** 475 (1946)
Rogers, R. R., and Viens, G. E. Effect of Pressure on the Refining of Lithium by Distillation, **98,** 483 (1951)
Rogers, R. R., and Viens, G. E. Refining of Magnesium by Vaporization at Extremely Low Pressure, **97,** 419 (1950)
Rogers, T. S. Report of Committee on Insulating Materials, A. Progress in Fiberglas Materials, **81,** 41 (1942)
Rohan, J. J., and Carmody, W. R. Polarization at Oxidation-Reduction Electrodes, I. Ferrocyanide-Ferricyanide Electrode, **83,** 241 (1943)
Romer, J. B., and Brister, P. M. Corrosion and Oxidation Experiences in High Pressure and High Temperature Steam Service, **91,** 655 (1947)
Rose, C. C. Report of Committee on Primary and Secondary Batteries, **81,** 11 (1942)
Rose, C. C. Report of Committee on Primary and Secondary Batteries for the Year 1942, **83,** 16 (1943)
Rose, C. C. Report of Committee on Primary and Secondary Batteries for 1943, **85,** 10 (1944)
Rose, C. C. Report of Committee on Primary and Secondary Batteries for 1944, **87,** 9 (1945)
Rose, C. C. Report of Committee on Primary and Secondary Batteries for 1945, **89,** 38 (1946)
Rose, C. C. (D), **92,** 302 (1947)
Rosenbaum, J. B., *et al.* Improvements in the Electrowinning of Chromium, **97,** 227 (1950)
Rosenbaum, J. B. *et al.* Pilot-Plant Production of Electrolytic Chromium, **94,** 122 (1948)
Rosenbloom, H. (D), **83,** 374, 376 (1943)
Rossman, Joseph. Electro-Organic Chemistry in the Patent Office, **84,** 121 (1943)
Rossman, Joseph. Review of Patents on Electrolytic Methods for Making Powdered Metals, **85,** 169 (1944)
Roszkowski, E. S., and Young, C. B. F. Electrodeposition of Nickel from Orthophosphate Baths, **94,** 176 (1948)
Rowe, R. C., *et al.* Electrolytic Reduction of Acetophenone in Alkaline Solution, **85,** 231 (1944)
Ruben, Samuel. Balanced Alkaline Dry Cells, **92,** 183 (1947)
Ruben, Samuel. Magnesium-Copper Sulfide Rectifier, **87,** 275 (1945)
Ruder, R. C., and Simnad, M. T. Mechanism of Exchange between Radioactive Ions in Solution and Metal Surfaces, **98,** 301 (1951)
Rugg, F. M. (D), **89,** 355 (1946)
Rule, K. C. (D), **83,** 111 (1943); **86,** 104, 105, 120 (1944)
Rutkowski, C., and Culbertson, J. L. Oxidation of Cerous Sulfate at a Rotating Anode, **81,** 185 (1942)
Ruttencutter, A. T. (D), **86,** 185 (1944)

Sadowsky, Meier. Preparation of Luminescent Screens, **95,** 112 (1949)
Sadowsky, J. M. (D), **86,** 264 (1944)
Saklatwalla, B. D. Thermal Reactions in Ferro-Alloy Metallurgy, The Basis of Alloy Steel Development, Eighth Joseph W. Richards Memorial Lecture, **84,** 13 (1943)
Saltonstall, R. B. (D), **88,** 320 (1945)
Salzberg, Hugh, and King, C. V. Rate of Corrosion of Silver in Solutions of Ferric Sulfate, **97,** 290 (1950)
Salzberg, H. W., *et al.* Rate of Dissolution of Silver in Aqueous Ceric Sulfate Solutions, **98,** 31 (1951)
Sanborn, C. B. (D), **86,** 270 (1944); **90,** 41, 329 (1946)
Sanders, M. T., and Hales, R. A. Performance of Electrolytic Cells in the Reduction of Glucose, **96,** 241 (1949)
Sartori, G., and Liberti, A. Polarographic Investigation of Mercaptobenzothiazole, **97,** 20 (1950)
Sausville, J. W., and Glockler, George. Electron Affinity of the Carbon Atom, **95,** 282 (1949)
Sausville, J. W., and Glockler, George. Thermionic Emission from Carbon, **95,** 292 (1949)
Savage, F. K. (D), **84,** 345 (1943)
Schaefer, R. A. (D), **82,** 111 (1942); **96,** 378 (1949); **98,** 256 (1951)
Schaefer, R. A., and Hovorka, Frank. Electromotive-Force Measurements of Molten Binary Alloys, **87,** 479 (1945)
Schaefer, R. A., and Mohler, J. B. Electrodeposition on the Inside of Eccentric Cylinders, **86,** 431 (1944)
Schaefer, R. A., and Mohler, J. B. Electrolytic Analysis of Strike Solutions, **88,** 421 (1945)
Schaffer, H. J., *et al.* The Electrolytic Reduction of Maleic Acid to Succinic Acid in Acid Solution, **96,** 353 (1949)
Schaffert, R. M., and Gonser, B. W. Sulfate-Chloride Solution for Iron Electroplating and Electroforming, **84,** 319 (1943)
Schaschl, Edward, and McDonald, H. J. Low Temperature Liquid Sulfur Dioxide Cell, **94,** 299 (1948)
Scheer, C. L., and Alnutt, D. B. Zirconium Metal, Its Manufacture, Fabrication and Properties, **88,** 195 (1945)
Scheil, M. A. (D), **85,** 324 (1944); **91,** 153 (1947)
Schertzinger, C. B., *et al.* Preparation of a Dry Cell Depolarizer by Air Oxidation of Manganous Hydroxide, **92,** 127 (1947)
Schlain, David, *et al.* Electrolytic Refining of Antimony Bullion, **95,** 145 (1949)
Schlain, David, and Prater, J. D. Electrodeposition of Gamma Manganese, **94,** 58 (1948)
Schlechten, A. W. (D), **87,** 585 (1945); **93,** 358 (1948); **98,** 257 (1951)
Schlechten, A. W., *et al.* Ductile Zirconium from Zircon Sand, **89,** 263 (1946)

Schlechten, A. W., *et al.* New Carbon Resistor Furnace, **89,** 317 (1946)
Schlechten, A. W., *et al.* Recent Progress in the Metallurgy of Malleable Zirconium, **92,** 99 (1947)
Schlechten, A. W., and Kroll, W. J. Reactions of Carbon and Metal Oxides in a Vacuum, **93,** 247 (1948)
Schnettler, F. J., *et al.* Binary Alloys of Indium and Tin, **88,** 229 (1945)
Schoegler, J. O., *et al.* Lead Dioxide Cell Containing Various Electrolytes, **90,** 405 (1946)
Schoenfeldt, H. R. 1946 Review of Phosphors and their Applications, **91,** 39 (1947)
Schonfeld, F., and Kuczynski, G. C. Corrosion Characteristics of Some Magnesium-Zinc-Calcium Alloys, **93,** 41 (1948)
Schrodt, J. P., *et al.* Lead Dioxide Cell Containing Various Electrolytes, **90,** 405 (1946)
Schrodt, J. P., *et al.* Service Life of and Gases Evolved from Dry Batteries Stored at 55°C (130°F), **90,** 449 (1946)
Schuldiner, Sigmund, and White, R. E. Studies of Time-Potential Changes on an Electrode Surface during Current Interruption, I. Zinc-Steel Couple in Synthetic Sea Water, **97,** 433 (1950)
Schulein, J. (D), **87,** 569 (1945); **89,** 484 (1946)
Schulman, Fred, and Harwood, J. J. Review of "Forum on Corrosion Research" held at Washington, D. C., Nov. 9–10, 1949, **97,** 83*C* (1950)
Schulman, J. H. (D), **98,** 519 (1951)
Schulman, J. H., and Claffy, E. W. Copper-Activated Aluminosilicate Phosphors, **98,** 409 (1951)
Schulman, J. H., *et al.* Fluorescence of Atomic Silver in Glasses and Crystals, **95,** 70 (1949)
Schulman, J. H., *et al.* Manganese-Activated Zinc Beryllium Germanate Phosphors, **96,** 57 (1949)
Schulman, J. H., *et al.* Study of the Mechanism of Sensitized Luminescence of Solids, **97,** 123 (1950)
Schulman, J. H., and Ginther, R. J. (D), **95,** 351 (1949)
Schumacher, E. A. (D), **90,** 402, 403 (1946); **91,** 365 (1947); **92,** 214 (1947)
Schumacher, E. A., *et al.* Air-Depolarized Primary Cell with Caustic Alkali Electrolyte II, **92,** 173 (1947)
Schumacher, E. A., *et al.* Heavy Duty Chlorine-Depolarized Cell, **94,** 99 (1948)
Schumacher, J. C. Commercial Production of Perchlorates, **92,** 45 (1947)
Schumacher, J. C. (D), **92,** 64 (1947)
Schutz, P. W., *et al.* Corrosion of Lead-Indium Diffusion Alloys, **84,** 65 (1943)
Schwab, G.-M. Formamide Hydrochloride, **97,** 220*C* (1950)
Schwan, T. C., *et al.* Electrolytic Reduction of Organic Compounds, V. Cathodic Initiation of Vinyl Polymerization in Acrylic Acid, Methyl Acrylate, and Methacrylate. Carbonyl Reduction in Crotonic Acid, **96,** 226 (1949)
Schwartz, M. (D), **85,** 162, 221 (1944); **94,** 371, 374, 384, 385, 389, 391, 392 (1948)
Scott, Howard, and Bechtold, J. H. Mechanical Properties of Arc-Cast and Powder Metallurgy Molybdenum, **98,** 495 (1951)
Seabury, R. L. (D), **82,** 372 (1942); **85,** 117 (1944)
Seagren, G. W. Review of Corrosion Literature for 1945: Protective Coatings, **89,** 51 (1946)
Seagren, G. W. (D), **87,** 191 (1945)
Seegmiller, Robert, *et al.* Chromated Protein Films for the Protection of Metals, **93,** 55 (1948)
Seifert, R. L., and Erway, N. D. Vapor Pressure of Beryllium Oxide, **98,** 83 (1951)
Seim, H. J., and Holt, M. L. Attempts to Electrodeposit Tantalum, **96,** 43 (1949)
Seim, H. J., and Holt, M. L. Electrodeposition of Molybdenum Alloys, **96,** 205 (1949)
Sejersted, J., *et al.* Twenty-Five Years' Development of the Söderberg System in Aluminum Furnaces, **94,** 220 (1948)
Sem, M., *et al.* Twenty-Five Years' Development of the Söderberg System in Aluminum Furnaces, **94,** 220 (1948)
Senderoff, Seymour. (D), **93,** 377 (1949)
Senderoff, Seymour, and Brenner, Abner. Plating Experiments with Aqueous Solutions at High Temperatures, **97,** 361 (1950)
Setapen, A. M. Silver Alloy Brazing with Induction Heating, **86,** 273 (1944)
Seybolt, A. U. (D), **93,** 257 (1951)
Seybolt, A. U., and McKechnie, R. K. Preparation of Ductile Vanadium by Calcium Reduction, **97,** 311 (1950)
Seyer, W. F., *et al.* Reaction of Sulfur Dioxide, Water and Oxygen in an Electrolytic Cell, **91,** 133 (1947)
Seyl, R. G. (D), **84,** 63, 69 (1943); **85,** 296 (1944)
Shand, E. B. Report of Committee on Insulating Materials, B. Corning #792 Glass, **81,** 44 (1942)
Shanley, E. S., and Bretschger, M. E. Concentrated Hydrogen Peroxide, **92,** 67 (1947)
Shaw, Manuel, and Remick, A. E. Studies on Alternating Current Electrolysis, I. The Nature of Polarization Capacity and Polarization Resistance, **97,** 324 (1950)
Shelton, F. K., *et al.* Electrolytic Cobalt—A Commercially Feasible Process, **91,** 115 (1947)
Shelton, F. K., *et al.* Study of Impurities in Cobalt Electrowinning, **85,** 193 (1944)
Shephard, H. D., *et al.* Specially Processed Silicon Carbide as a Deoxidizing Agent in the Reducing Slag of Basic Electric Steelmaking, **91,** 155 (1947)
Sherman, V. W. Case Hardening by Megacycle Induction Heating, **86,** 247 (1944)
Shreir, L. L., and Smith, J. W. Cathode Polarization Potential during Electrodeposition of Copper, I. Nonreproducibility in Acid Copper Sulfate Solutions, **98,** 193 (1951)
Sibley, R. S., and Imboden, R. L. Anodic Polishing of Plain Carbon Steels, **82,** 227 (1942)
Silverman, Jacob, and Remick, A. E. Studies on Alternating Current Electrolysis, II. Oscillographic Studies, **97,** 335 (1950)
Simnad, M. T. Review of the Electrochemistry of Stressed Metals, **97,** 31*C* (1950)
Simnad, M. T., and Ruder, R. C. Mechanism of Exchange Between Radioactive Ions in Solution and Metal Surfaces, **98,** 301 (1951)
Simons, J. H. Electrochemical Process for the Production of Fluorocarbons, I. The Generalized Procedure and Its Use With Nitrogen Compounds, **95,** 47 (1949)
Simons, J. H., and Dresdner, R. D. Electrochemical Process for the Production of Fluorocarbons, V. From Hydrocarbons, **95,** 64 (1949)
Simons, J. H., *et al.* Electrochemical Process for the Production of Fluorocarbons, II. The Electrolysis of Solutions of Organic Substances in Liquid Hydrogen Fluoride, **95,** 53 (1949)
Simons, J. H., *et al.* Electrochemical Process for the Production of Fluorocarbons, IV. From Oxygen Containing Compounds, **95,** 59 (1949)
Simons, J. H., and Harland, W. J. Electrochemical Process for the Production of Fluorocarbons, III. From Hydrogen Fluoride-Soluble Organic Substances, **95,** 55 (1949)
Simonsen, S. H., and Clark, G. L. Relationship Between Orientation, Grain Size, and Brightness in Nickel Electrodeposits, **98,** 110 (1951)
Sklarew, S. (D), **87,** 353 (1945)
Skowronski, S. (D), **87,** 519 (1945)
Slattery, Thomas. Personal Side and Traits of Dr. William Blum, **86,** 13 (1944)
Slauer, R. G. Fluorescent Lamp Problems Challenge the Electrochemist, **87,** 389 (1945)
Slotterbeck, O. C. Electrolytic Reduction of Acetone to Pinacol, **92,** 377 (1947)
Smatko, J. S. (D), **84,** 95, 343 (1943)
Smatko, J. S., and Fink, C. G. Bone Fixation and the Corro-

sion Resistance of Stainless Steels to the Fluids of the Human Body, **94,** 271 (1948)
Smith, A. A., Jr., and Howe, H. E. Properties and Uses of Thallium, **97,** 167*C* (1950)
Smith, A. L. Influence of Atmosphere Firing on the Cathodoluminescence of Zinc Sulfide: Silver Type Phosphors, **93,** 324 (1948)
Smith, A. L. Influence of Fluxes on the Cathodoluminescence of Zinc Sulfide-Phosphors, **96,** 75 (1949)
Smith, A. L. Luminescence of Three Forms of Zinc Orthophosphate: Mn, **98,** 363 (1951)
Smith, A. L. Some New Complex Silicate Phosphors Containing Calcium, Magnesium, and Beryllium, **96,** 287 (1949)
Smith, A. L. (D), **93,** 349 (1948); **96,** 378 (1949)
Smith, C. W. Acidic Atmosphere Evaluation of Cleaning on the Corrosion of Steel, **89,** 127 (1946)
Smith, E. J. (D), **89,** 431 (1946); **94,** 375 (1948)
Smith, G. B. L., and Leeds, M. W. Electrochemical Reduction of Nitroalkanes: Preparation of *N*-Alkylhydroxylamines (Hydroxaminoalkanes), **98,** 129 (1951)
Smith, J. H. (D), **92,** 325 (1947); **94,** 400 (1948)
Smith, J. W., and Shreir, L. L. Cathode Polarization Potential during Electrodeposition of Copper, I. Nonreproducibility in Acid Copper Sulfate Solutions, **98,** 193 (1951)
Smith, L. W. Corrosion Tests of Multi-Arc Welded High-Strength Aluminum Alloys, **89,** 83 (1946)
Smith, L. W. (D), **89,** 259 (1946)
Smith, L. W., and Pingel, V. J. Micro Solution-Potential Measuring Technique, **98,** 48 (1951)
Smith, W. R. (D), **86,** 363, 364 (1944)
Smith, W. S. (D), **84,** 246 (1943)
Snavely, C. A. Theory for the Mechanism of Chromium Plating; A Theory for the Physical Characteristics of Chromium Plate, **92,** 537 (1947)
Snavely, C. A. (D), **92,** 518 (1947); **94,** 373, 394 (1948)
Snavely, C. A., and Faust, C. L. Studies on the Structure of Hard Chromium Plate, **97,** 99 (1950)
Snyder, W. J. (D), **94,** 376 (1948)
Soderberg, Gustaf. Bright Dipping, **88,** 297 (1945)
Soderberg, Gustaf. Corrosion Resistance Afforded by Bright Dipped Cadmium Coatings, **82,** 71 (1942)
Soderberg, G. (D), **82,** 52, 68, 132, 256 (1942)
Soderberg, K. G. (D), **94,** 373, 375 (1948)
Solanki, D. N. Influence of Structure and Strain in a Metal Cathode on the Electrolytic Reduction of Nitrobenzene to Aniline, **88,** 97 (1945)
Solanki, D. N., and Fink, C. G. Aluminum from a Fused Chloride Bath, **91,** 203 (1947)
Sollner, Karl. Recent Advances in the Electrochemistry of Membranes of High Ionic Selectivity, **97,** 139*C* (1950)
Southgate, G. T. (D), **90,** 107, 329 (1946)
Sparks, M. (D), **91,** 405 (1947)
Speil, Sidney, and Thompson, M. R. Electrophoretic Dewatering of Clay, **81,** 119 (1942)
Speller, F. N. Review of Corrosion Literature for 1945: Cavitation, **89,** 55 (1946)
Speller, F. N. (D), **83,** 359, 374 (1943); **89,** 119, 163 (1946); **90,** 508 (1946)
Spitale, F. (D), **89,** 259 (1946)
Spitzer, E. E. Induction Heating in Radio Electron Tube Manufacture, **86,** 295 (1944)
Squitero, A. (D), **84,** 317, 318 (1943)
Stahl, J. C., *et al.* Electrolytic Cobalt—A Commercially Feasible Process, **91,** 115 (1947)
Staicopoulos, Dimitrios, *et al.* Electronic Instrumentation for Overvoltage Measurements, **98,** 68 (1951)
Stanley, H. E., and Glasstone, Samuel. Electrolytic Oxidation of α-Pinene, Terpinolene and Dipentene, **92,** 327 (1947)
Stansel, N. R. (D), **86,** 257, 262, 264 (1944)
Stansel, N. R., and Oltrogge, A. R. Electric Apparatus for Three-Phase Arc-Furnaces, **91,** 191 (1947)
Stareck, J. E. New Type of Electrochemical Reaction, **89,** 479 (1946)
Stearn, R. F. (D), **85,** 221 (1944)
Stebbins, H. L. (D), **83,** 94 (1943)
Stehney, A. F., and Rogers, L. B. Electrodeposition Behavior of a Simple Ion, **95,** 25 (1949)
Steinberg, M. (D), **95,** 351 (1949)
Steinhoff, Ernest, *et al.* Anode Problem in the Electrodeposition of Manganese Dioxide, **86,** 337 (1944)
Stericker, William, and Hazel, J. F. Effects of Alkaline Detergents on a Magnesium Die Casting Alloy, **98,** 273 (1951)
Stern, K. G., and Reiner, Miriam. Boundary Anomalies and Artifacts in Electrophoresis, **97,** 213 (1950)
Stern, K. H., and Templeton, C. C. Electrical Conductance of Solutions of Cobalt (II) Nitrate Hexahydrate in Acetophenone at 25°C, **98,** 443 (1951)
Sternfels, M. M. (D), **97,** 466 (1950)
Sternfels, M. M., and Lowenheim, F. A. Tin Plating from the Potassium Stannate Bath, **82,** 77 (1942)
Stillman, N., and Wachter, A. Corrosion by Phenol at High Temperatures, **87,** 183 (1945)
Stoddard, C. K. (D), **96,** 383 (1949)
Stoddard, W. B., Jr. Iron Plating, **84,** 305 (1943)
Stoddard, W. B., Jr. (D), **84,** 171, 333 (1943); **90,** 54, 62 (1946); **92,** 53 (1947)
Stoertz, H. (D), **84,** 70 (1943)
Stoltz, G. E., and Cook, W. G. Characteristics of Electric Apparatus Used on Electro-Tinning Lines, **84,** 259 (1943)
Stone, K. G. Complex Species in Organic Polarography, **97,** 63 (1950)
Storey, O. W. Research in Industry—Is Government Antagonistic to It?, **97,** 9*C* (1950)
Storey, O. W. Research in Industry—Is Government Antagonistic to It?, Tenth Joseph W. Richards Memorial Lecture, **96,** 3*P* (1949)
Storey, O. W. (D), **81,** 230 (1942); **85,** 181, 212, 255, 306 (1944); **86,** 138, 324, 393 (1944); **88,** 22, 60 (1945); **89,** 505, 506 (1946); **91,** 93, 219 (1947)
Storey, O. W., *et al.* Anode Problem in the Electrodeposition of Manganese Dioxide, **86,** 337 (1944)
Straumanis, M. E., and Brakšs, N. Effect of Minor Alloying Elements on the Rate of Dissolution of Aluminum in Bases, **96,** 310 (1949)
Straumanis, M. E., and Brakšs, N. Rate of Solution of High Purity Aluminum in Various Bases, **96,** 21 (1949)
Straumanis, M. E., and Brakšs, N. Rate of Solution of Highest Purity Aluminum in Sodium Hydroxide Solutions, **95,** 98 (1949)
Straumanis, M. E., and Chen, P. C. Difference Effect on Titanium Dissolving in Hydrofluoric Acid, **98,** 351 (1951)
Straumanis, M. E., and Chen, P. C. Mechanism and Rate of Dissolution of Titanium in Hydrofluoric Acid, **98,** 234 (1951)
Straumanis, M. E., and Fang, C. C. Structure of Metal Deposits Obtained by Electrochemical Displacement Upon Zinc, **98,** 9 (1951)
Streaker, W. A., *et al.* Electrolytic Reduction of Maleic Acid to Succinic Acid in Acid Solution, **96,** 353 (1949)
Streicher, M. A. Dissolution of Aluminum in Sodium Hydroxide Solutions, **93,** 285 (1948)
Streicher, M. A. Dissolution of Aluminum in Sodium Hydroxide Solutions. II, **96,** 170 (1949)
Streicher, M. A., and Roald, B. Corrosion Rate and Etch Structures of Aluminum; Effect of Heat Treatment and Impurities, **97,** 283 (1950)
Strow, H. A. (D), **84,** 255 (1943); **88,** 291 (1945)
Struyk, Clifford, and Young, C. B. F. Deposition of Nickel-Cobalt Alloys from Chloride Solutions, **89,** 383 (1946)
Stuber, P. J. (D), **86,** 103, 104 (1944)
Stuber, P. J., *et al.* Economic Factors in Operation of Cylindrical Chlorine Cells, **89,** 455 (1946)

Stuber, P. J., *et al.* Efficiency Factors of Cylindrical Chlorine Cells, **86,** 107 (1944)

Studley, J. H., and Housley, J. E. Aspects of the Operation of Mercury Arc Rectifier Stations, **86,** 169 (1944)

Sudbury, J. D., and Hackerman, Norman. Effect of the Addition of Amines on the Electrode Potential of Copper in Buffered Acid Solution, **93,** 191 (1948)

Sudbury, J. D., and Hackerman, Norman. Effect of Amines on the Electrode Potential of Mild Steel in Tap Water and Acid Solutions, **97,** 109 (1950)

Sullivan, J. D. (D), **81,** 86, 87 (1942); **88,** 132, 170 (1945)

Sunstein, D. (D), **88,** 228 (1945)

Sutherland, B. P. Electrolytic Hydrogen Cells of Trail Design, **85,** 183 (1944)

Suttle, J. F., and Mathers, F. C. Electrodeposition of Lead from the Ethylbenzenesulfonate Bath, **93,** 47 (1948)

Swalheim, D. A. Rotating Cathode Cell for Strip Plating Evaluation, **86,** 395 (1944)

Swalheim, D. A., and Holt, M. L. Solubility of Nickel Ions in Aqueous Alkaline Carbonate-Tungstate Solutions, **81,** 251 (1942)

Swann, Sherlock, Jr. Electro-Organic Chemical Preparations. III., **88,** 103 (1945)

Swann, Sherlock, Jr. Electrolytic Reduction of Amides. I., *N,N*-Dimethylvaleramide and Acetanilide, **84,** 165 (1943)

Swann, Sherlock, Jr. Scientific and Technical Accomplishments of H. J. Creighton, **90,** 6 (1946)

Swann, Sherlock, Jr. (D), **82,** 305 (1942); **84,** 143, 178 (1943); **88,** 22, 80, 94, 95, 102 (1945); **90,** 432 (1946); **92,** 375, 389 (1947); **96,** 383 (1949)

Swann, Sherlock, Jr., *et al.* Coordination Compounds in the Electrodeposition of Chromium, **92,** 507 (1947)

Swann, Sherlock, Jr., *et al.* Electrodeposition of Cobalt and Nickel from Coordination Compounds, **90,** 55 (1946)

Swann, Sherlock, Jr., *et al.* Electrolytic Reduction of Acetophenone in Alkaline Solution, **85,** 231 (1944)

Swann, Sherlock, Jr., *et al.* Electrolytic Reduction of Maleic Acid to Succinic Acid in Acid Solution, **96,** 353 (1949)

Swann, Sherlock, Jr., and Kerfman, H. D. Electrolytic Reduction of Carbonyl Compounds at Carbon Cathodes, **92,** 427 (1947)

Swann, Sherlock, Jr., and Parker, E. A. Electrolytic Reduction of Hexoses, **92,** 343 (1947)

Szekely, G. Electrodeposition of Germanium, **98,** 318 (1951)

Tauber, J. A. (D), **92,** 157 (1947)

Taylor, A. L. (D), **82,** 263, 264 (1942)

Taylor, C. S., *et al.* Anodic Coatings with Crystalline Structure on Aluminum, **88,** 325 (1945)

Taylor, Frank. (D), **83,** 376 (1943)

Taylor, J. K., and Barredo, J. M. G. Automatic Recording of Titrations, **92,** 437 (1947)

Taylor, J. K., and Buckley, Floyd. Some Factors Affecting the Precision in Polarographic Analysis, **87,** 463 (1945)

Taylerson, E. S. (D), **82,** 100, 184 (1942)

Teach, W. C., and Culbertson, J. L. Perborate Formation at a Rotating Anode, **81,** 191 (1942)

Teeple, H. O. Review of Corrosion Literature, 1943, **85,** 12 (1944)

Templeton, C. C., and Stern, K. H. Electrical Conductance of Solutions of Cobalt (II) Nitrate Hexahydrate in Acetophenone at 25°C, **98,** 443 (1951)

Tetu, D. A., *et al.* Corrosion Resistance of Magnesium and Certain of its Alloys under Various Accelerated Atmospheric Conditions, **90,** 475 (1946)

Thayer, R. N. Ballasting Requirements for Fluorescent Lamps, **83,** 113 (1943)

Thayer, R. N. Some Physical Properties of Fluorescent Lamp Coatings, **87,** 413 (1945)

Thayer, R. N. (D), **88,** 214, 215, 221, 222, 224, 227 (1945)

Thiessen, G. W. (D), **98,** 255 (1951)

Thomas, C. T. (D), **84,** 313, 334 (1943)

Thomas, U. B. Electrical Conductivity of Lead Dioxide, **94,** 42 (1948)

Thomas, U. B. (D), **90,** 403, 544 (1946); **92,** 279 (1947); **93,** 353 (1948)

Thomas, U. B., and Campbell, W. E. Oxidation of Metals, **91,** 623 (1947)

Thomas, U. B., *et al.* Corrosion and Growth of Lead-Calcium Alloy Storage Battery Grids as a Function of Calcium Content, **92,** 313 (1947)

Thompson, A. P. (D), **96,** 385 (1949)

Thompson, A. P., *et al.* Specially Processed Silicon Carbide as a Deoxidizing Agent in the Reducing Slag of Basic Electric Steelmaking, **91,** 155 (1947)

Thompson, M. deK. Specific Heat Equations for Carbon Dioxide, Carbon Monoxide, Steam, Hydrogen, and Oxygen and the Free Energy Equation for the Water-Gas Reaction, **82,** 397 (1942)

Thompson, M. R. Principles of Microelectrophoresis Cells, **81,** 147 (1942)

Thompson, M. R., and Gabbard, J. L. Effect of Sodium Hydroxide upon the Electrodeposition of Electrodialyzed Kaolin, **95,** 329 (1949)

Thompson, M. R., and Speil, Sidney. Electrophoretic Dewatering of Clay, **81,** 119 (1942)

Thompson, P. F. Dissolution of Gold in Cyanide Solutions, **91,** 41 (1947)

Thornhill, R. S. (D), **83,** 401 (1943)

Thurber, E. A. (D), **85,** 221 (1944); **88,** 215 (1945)

Tichvinsky, L. M. Laboratory Evaluation of Corrosion Resistance of Bearing Alloys, **85,** 279 (1944)

Tien, Jack M. Preparation of Beryllium Powder, **89,** 237 (1946)

Tien, J. M. (D), **89,** 261 (1946)

Timby, T. G. (D), **84,** 302, 303 (1943); **88,** 241 (1942)

Tjemmes, John. Effects of Operation on Electric Furnace Refractories, **94,** 98 (1948)

Toensing, C. H. (D), **98,** 257 (1951)

Tosterud, Martin, and Mason, R. B. Aluminum Coulometer, **90,** 221 (1946)

Towns, M. B. (D), **81,** 302 (1942)

Towns, M. B., and Ferguson, A. L. Studies on Overvoltage, XIII. Decay of Cathode Potential in Still and Stirred Solutions Saturated with Hydrogen or with Nitrogen, **82,** 307 (1942)

Towns, M. B., and Ferguson, A. L. Studies on Overvoltage, XIV. Study of Hydrogen Decomposition Potentials under Various Conditions in Acid Solutions at Platinized Platinum Electrodes, **82,** 323 (1942)

Towns, M. B., and Ferguson, A. L. Studies on Overvoltage, XV. Study of Decomposition Potentials. Cathodic and Anodic Polarization of a Platinized Platinum Cathode near the Reversible Value in Hydrogen Saturated Acid Solutions, **83,** 271 (1943)

Towns, M. B., and Ferguson, A. L. Studies on Overvoltage, XVI. Cathodic and Anodic Polarization of a Platinized Platinum Cathode near the Reversible Value in Nitrogen Saturated Acid Solutions, **83,** 285 (1943)

Tracy, A. W. Review of Corrosion Literature for 1945: Atmospheric Corrosion, **89,** 54 (1946)

Treco, R. M. (D), **98,** 254 (1951)

Trivich, D. (D), **98,** 512 (1951)

Tsou, Y. S. Current Leakage through Cascaded Cells, **82,** 353 (1942)

Tucker, C. M., *et al.* Anodic Coatings with Crystalline Structure on Aluminum, **88,** 325 (1945)

Tucker, W. M. (D), **82,** 52, 53, 226 (1942)

Tucker, W. M., and Flint, R. L. Effect of Various Surface Treatments in Cleaning and Preparing Copper, Nickel and Steel for Chromium Plating, **88,** 335 (1945)

Turner, C. K. (D), **83,** 374, 375 (1943)

Turner, D. R. Anode Polarization Effects of Nickel in Sulfuric Acid, **98,** 434 (1951)

TURNER, D. R. (D), **97,** 471 (1950); **98,** 510 (1951)
TURNER, W. D., *et al.* Zinc Yellow in the Inhibition of Corrosion Fatigue of Steel in Sodium Chloride Solution, **83,** 377 (1943)
TUWINER, S. B. (D), **85,** 295 (1944)
TUWINER, S. B., and OSBORN, W. H. Electrodeposition of Copper Powder, **85,** 107 (1944)

UDY, M. J. Electric Furnace Smelting and High Temperature Chemistry, **98,** 158C (1951)
UHLIG, H. H. Adsorbed and Reaction-Product Films on Metals, **97,** 215C (1950)
UHLIG, H. H. Comparative Effect of Carbon and Nitrogen on Intergranular Corrosion of 18/8 Stainless Steel, **87,** 193 (1945)
UHLIG, H. H. Passivity in Copper-Nickel and Molybdenum-Nickel-Iron Alloys, **85,** 307 (1944)
UHLIG, H. H. (D), **81,** 64, 338, 432, 554, 555, 570 (1942); **82,** 388 (1942); **85,** 133, 252, 253, 294, 295 (1944); **87,** 123 (1945); **89,** 119, 144, 146, 162, 164, 189, 204, 509, 511, 512, 513, 514 (1946); **90,** 508 (1946); **91,** 603, 653, 678, 679, 714 (1947); **93,** 338, 340, 346, 352 (1948); **94,** 370, 382, 397, 399, 402 (1948); **95,** 348 (1949); **97,** 462, 463, 464, 471 (1950)
UHLIG, H. H., and BRASUNAS, A. DE S. Effect of Magnetic Transformation at the Curie Temperatures on Oxidation Rates of Chromium-Iron Alloys, **97,** 448 (1950)
UHLIG, H. H., and ROBERTSON, W. D. Chemical Properties of the Intermetallic Compounds Mg_2Sn and Mg_2Pb, **96,** 27 (1949)
UHLIG, H. H., and WALLACE, E. M. Effect of Hydrochloric Acid Plus Inhibitor on the Corrosion Resistance of 18/8 Stainless Steel, **81,** 511 (1942)
UNDERWOOD, A. F. Review of Corrosion Literature for 1945: Corrosion of Bearings and Bearing Alloys, **89,** 66 (1946)
UNDERWOOD, J. E. Anomalous Luminescent Effect, **95,** 319 (1949)
UNTERWEISER, P. (D), **86,** 257, 258, 261 (1944)
URBAN, S. F. (D), **93,** 361, 362 (1948)

VAALER, L. E., and HOLT, M. L. Codeposition of Tungsten and Nickel from an Aqueous Ammoniacal Citrate Bath, **90,** 43 (1946)
VAALER, L. E., and HOLT, M. L. Electrolytic Reduction of Aqueous Tungstate Solutions, **94,** 50 (1948)
VANDE BOGART, L. G. (D), **85,** 252 (1944); **91,** 653 (1947)
VAN DEN BOOMGAARD, J., *et al.* Bismuth as Activator in Fluorescent Solids, **96,** 132 (1949)
VAN DEN BOOMGAARD, J., and KROEGER, F. A. Fluorescence of Magnesium Germanate Activated by Manganese, **97,** 377 (1950)
VAN DERHOEF, W. H., *et al.* Recent Developments in Titanium, **97,** 49 (1950)
VAN MALE DE GHORAIN, R., and LUYCKX, ANDRÉ. Spiraling in Fluorescent Lamps, **97,** 159 (1950)
VAN NORDSTRAND, R. D. (D), **86,** 258 (1944)
VAN RYSSELBERGHE, PIERRE. (D), **87,** 568 (1945)
VAN RYSSELBERGHE, PIERRE, *et al.* Potential-*p*H Diagram of Lead and its Applications to the Study of Lead Corrosion and to the Lead Storage Battery, **98,** 57 (1951)
VAN RYSSELBERGHE, PIERRE, *et al.* Potential-*p*H Diagram of Silver—Construction of the Diagram—Its Applications to the Study of the Properties of the Metal, its Compounds, and its Corrosion, **98,** 65 (1951)
VAN RYSSELBERGHE, PIERRE, *et al.* Potential-*p*H Diagram of Zinc and Its Applications to the Study of Zinc Corrosion, **98,** 101 (1951)
VAUGHAN, D. A., *et al.* Uranium Sesquicarbide, **98,** 505 (1951)
VEAZEY, W. R. Historical Interlude, **89,** 75 (1946)
VERWEY, E. J. W. (D), **95,** 362 (1949); **96,** 383 (1949)
VIENS, G. E., and ROGERS, R. R. Effect of Pressure on the Refining of Lithium by Distillation, **98,** 483 (1951)
VIENS, G. E., and ROGERS, R. R. Refining of Magnesium by Vaporization at Extremely Low Pressure, **97,** 419 (1950)
VINAL, G. W. Report of Committee on Primary and Secondary Batteries for 1946, **91,** 35 (1947)
VINAL, G. W. Report of Committee on Standards, **81,** 45 (1942)
VINAL, G. W. Standard Cells and the Change from International to Absolute Electrical Units, **93,** 95 (1948)
VINAL, G. W. Volta and the Volt, **98,** 11C (1951)
VINAL, G. W. (D), **86,** 312, 326 (1944); **90,** 226, 540 (1946)
VINAL, G. W., *et al.* Effect of Digesting, Autoclaving and Neutralizing some Battery Manganese Dioxides, **86,** 327 (1944)
VINAL, G. W., *et al.* Low Temperature Dry Cells, **90,** 419 (1946)
VINAL, G. W., *et al.* Service Life of and Gases Evolved from Dry Batteries Stored at 55°C (130°F), **90,** 449 (1946)
VINAL, G. W., *et al.* Study of Equilibrium Reactions in the Leclanché Dry Cell, **90,** 509 (1946)
VOIGT, L. R. Review of Corrosion Literature for 1945: Corrosion in Chemical Engineering, **89,** 57 (1946)
VOIGT, L. R. Review of Corrosion Literature for 1945: Corrosion by Organisms, **89,** 61 (1946)
VOIGT, L. R. Review of Corrosion Literature for 1945: Corrosion in Sea Water, **89,** 62 (1946)
VOIGT, L. R. Review of Corrosion Literature for 1945: Corrosion in Oil Fields, **89,** 63 (1946)
VOIGT, L. R. Review of Corrosion Literature for 1945: Introduction, **89,** 42 (1946)
VOIGT, L. R., *et al.* Corrosion in Crevices, **89,** 149 (1946)
VON GOLDBECK, O., *et al.*, Free Energy Diagram of the Vanadium-Oxygen System, **98,** 417 (1951)
VORCE, L. D. Historic Development of Caustic-Chlorine Cells in America, **86,** 69 (1944)
VORCE, L. D. (D), **84,** 62, 63 (1943); **86,** 104 (1944)
VOSBURGH, F. J. (D), **81,** 86 (1942)
VOSBURGH, W. C., and FERRELL, D. T., JR. Proposed Mechanism for the Discharge of the Manganese Dioxide Electrode, **98,** 334 (1951)
WABER, J. T. (D), **90,** 243, 432, 440, 465 (1946); **93,** 343, 352, 353 (1948)
WABER, J. T., *et al.* Theory of Stress Corrosion Cracking of Mild Steel in Nitrate Solutions, **87,** 209 (1945)
WACHTER, A., and STILLMAN, N. Corrosion by Phenol at High Temperatures, **87,** 183 (1945)
WADSLEY, A. D., *et al.* X-Ray Diffraction Study of Manganese Dioxide, **92,** 133 (1947)
WADSLEY, A. D., and WALKLEY, ALLAN. Some Observations on the Potential of the Manganese Dioxide Electrode, **95,** 11 (1949)
WAGNER, CARL. On the Determination of the Roughness of Metallic Surfaces, **97,** 71 (1950)
WAGNER, CARL. Role of Natural Convection in Electrolytic Processes, **95,** 161 (1949)
WAGNER, CARL. Theoretical Analysis of the Current Density Distribution in Electrolytic Cells, **98,** 116 (1951)
WAINER, EUGENE. High Titania Dielectries (Abstract), **83,** 189 (1943)
WAINER, EUGENE. High Titania Dielectrics, **89,** 331 (1946)
WALKLEY, ALLAN. Determination of the Free Energy of Formation of the Manganous Ion from Thermal Data, **93,** 316 (1948)
WALKLEY, ALLAN. Determination of the Free Energy of Formation of the Manganous Ion from Thermal Data, **94,** 41 (1948)
WALKLEY, ALLAN, *et al.* X-Ray Diffraction Study of Manganese Dioxide, **92,** 133 (1947)
WALKLEY, ALLAN, and WADSLEY, A. D. Some Observations on the Potential of the Manganese Dioxide Electrode, **95,** 11 (1949)
WALLACE, E. M., and UHLIG, H. H. Effect of Hydrochloric Acid Plus Inhibitor on the Corrison Resistance of 18/8 Stainless Steel, **81,** 511 (1942)
WALLIS, W. B. (D), **91,** 153, 165, 186 (1947)

Walther, H. F. (D), **91,** 166 (1947)

Walton, C. J. Correlation of Solution Potentials with Orientations of Single Crystals of High Purity Aluminum, **85,** 239 (1944)

Walton, H. F. Anode Layer in the Electrolytic Polishing of Copper, **97,** 219 (1950)

Walz, A. E., and Glockler, George. Acetylene Polymer from Silent Discharge: Reactions with Hydrogen Halides, **88,** 63 (1945)

Wamsley, D. H. (D), **88,** 227 (1945)

Wanderer, K. H., *et al.* Electrolytic Reduction of Maleic Acid to Succinic Acid in Acid Solution, **96,** 353 (1949)

Wangsgard, A. P. (D), **90,** 274, 275 (1946)

Wangsgard, A. P., and Hazen, Thomas. Q-Meter for Dielectric Measurements on Polyethylene and Other Plastics at Frequencies up to 50 Megacycles, **90,** 361 (1946)

Ward, H. M., *et al.* Electrolytic Reduction of Acetophenone in Alkaline Solution, **85,** 231 (1944)

Ward, L. E. (D), **82,** 352 (1942)

Ward, Roland. Ideal Phosphor, **98,** 750 (1951)

Ward, Roland, Infrared-Sensitive Phosphors of the Alkaline Earth Sulfides and Selenides, **93,** 171 (1948)

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